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# University of Waterloo Study Confirms Sleep Problems, Vertigo and Tinnitus

## Long Awaited Research Results from the University of Waterloo in Canada have confirmed the existence of Sleep problems, Tinnitus and Vertigo

At a recent symposium in Toronto facilitated by former Toronto Mayor David Miller titled Symposia of the Ontario Research Chairs in Public Policy, a poster entitled ‘*Wind Turbine Noise, Sleep Quality, and Symptoms of Inner Ear Problems*’ was displayed by Claire Paller, Phil Bigelow, Shannon Majowicz, Jane Law, and Tanya Christidis.

The research indicates statistically significant results for sleep, vertigo and tinnitus (excerpt):  
*“All relationships were found to be positive and statistically significant.”*

The University of Waterloo — Ontario Ministry of Environment funded IWT health study was publicly displayed during the symposium on sustainability held at York University, Toronto on October 17, 2013.

It is reported that 396 surveys were included in the analysis (excerpts include):  
*“In total there were 412 surveys returned; 16 of these survey respondents did not provide their home address. Therefore, 396 surveys were included in the analysis.”*

Of note is the acknowledgement that as the distance from the IWT increases, sleep improves:  
*“The relationship between  $\ln(\text{distance})$  (as a continuous variable) and mean Pittsburgh Sleep Quality Index (PSQI) was found to be statistically significant ( $P=0.0096$ ) when controlling for age, gender and county. This relationship shows that as the distance increases (move further away from a wind turbine), PSQI decreases (i.e. sleep improves) in a logarithmic relationship. Multivariate analysis involved assessing distance to the nearest wind turbine as both distance and  $\ln(\text{distance})$ . In all cases,  $\ln(\text{distance})$  resulted in improved model fit.”*

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In addition the authors state that the relationship between vertigo and tinnitus worsened for those living closer to IWTs:

*“The relationship between vertigo and  $\ln(\text{distance})$  was statistically significant ( $P < 0.001$ ) when controlling for age, gender, and county. The relationship between tinnitus and  $\ln(\text{distance})$  approached statistical significance ( $P = 0.0755$ ). Both vertigo and tinnitus were worse among participants living closer to wind turbines.”*

The conclusion states:

*“In conclusion, relationships were found between  $\ln(\text{distance})$  and PSQI,  $\ln(\text{distance})$  and self-reported vertigo and  $\ln(\text{distance})$  and self-reported tinnitus. Study findings suggest that future research should focus on the effects of wind turbine noise on sleep disturbance and symptoms of inner ear problems.”*

Counties and projects in the study include:


- Bruce (Enbridge project);
- Chatham-Kent (Raleigh);
- Dufferin (Melancthon);
- Elgin (Erie Shores);
- Essex (Comber);
- Frontenac (Wolfe Island);
- Huron (Kingsbridge); and
- Norfolk (Frogmore/Cultus/ClearCreek).

Based on this evidence, it is not clear what the next steps will be for the Ministry of Environment. However, based on these results, evidence gathered by other researchers in Ontario and elsewhere supports these statistically significant findings.


Information provided by Carmen Krogh BSc Pharm  
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