

## Are wind farms a health risk? US scientist identifies 'wind turbine syndrome'

Noise and vibration coming from large turbines are behind an increase in heart disease, migraine, panic attacks and other health problems, according to research by an American doctor

By Margareta Pagano

*Sunday, 2 August 2009*



Until now, the Government and the wind companies have denied any health risks associated with the powerful noises and vibrations emitted by wind turbines

Living too close to wind turbines can cause heart disease, tinnitus, vertigo, panic attacks, migraines and sleep deprivation, according to groundbreaking research to be published later this year by an American doctor.

Dr Nina Pierpont, a leading New York paediatrician, has been studying the symptoms displayed by people living near wind turbines in the US, the UK, Italy, Ireland and Canada for more than five years. Her findings have led her to confirm what she has identified as a new health risk, wind turbine syndrome (WTS). This is the disruption or abnormal stimulation of the inner ear's vestibular system by turbine infrasound and low-frequency noise, the most distinctive feature of which is a group of symptoms which she calls visceral vibratory vestibular disturbance, or VVVD. They cause

problems ranging from internal pulsation, quivering, nervousness, fear, a compulsion to flee, chest tightness and tachycardia – increased heart rate. Turbine noise can also trigger nightmares and other disorders in children as well as harm cognitive development in the young, she claims. However, Dr Pierpont also makes it clear that not all people living close to turbines are susceptible.

Until now, the Government and the wind companies have denied any health risks associated with the powerful noises and vibrations emitted by wind turbines. Acoustic engineers working for the wind energy companies and the Government say that aerodynamic noise produced by turbines pose no risk to health, a view endorsed recently by acousticians at Salford University. They have

argued that earlier claims by Dr Pierpont are "imaginary" and are likely to argue that her latest findings are based on a sample too small to be authoritative.

At the heart of Dr Pierpont's findings is that humans are affected by low-frequency noise and vibrations from wind turbines through their ear bones, rather like fish and other amphibians. That humans have the same sensitivity as fish is based on new discoveries made by scientists at Manchester University and New South Wales last year. This, she claims, overturns the medical orthodoxy of the past 70 years on which acousticians working for wind farms are using to base their noise measurements. "It has been gospel among acousticians for years that if a person can't hear a sound, it's too weak for it to be detected or registered by any other part of the body," she said. "But this is no longer true. Humans can hear through the bones. This is amazing. It would be heretical if it hadn't been shown in a well-conducted experiment."

In the UK, Dr Christopher Hanning, founder of the British Sleep Society, who has also backed her research, said: "Dr Pierpont's detailed recording of the harm caused by wind turbine noise will lay firm foundations for future research. It should be required reading for all planners considering wind farms. Like so many earlier medical pioneers exposing the weaknesses of current orthodoxy, Dr Pierpont has been subject to much denigration and criticism and ... it is tribute to her strength of character and conviction that this important book is going to reach publication."

Dr Pierpont's thesis, which is to be published in October by K-Selected Books, has been peer reviewed and includes an endorsement from Professor Lord May, former chief scientific adviser to the UK government. Lord May describes her research as "impressive, interesting and important".

Her new material about the impact of turbine noise on health will be of concern to the Government given its plans for about 4,000 new wind turbines across the country. Ed Miliband, the Secretary of State for Energy and Climate Change, has made wind power a central part of his new green policy to encourage renewable energy sources. Another 3,000 are planned off-shore.

Drawing on the early work of Dr Amanda Harry, a British GP in Portsmouth who had been alerted by her patients to the potential health risk, Dr Pierpont gathered together 10 further families from around the world who were living near large wind turbines, giving her a cluster of 38 people, from infants to age 75, to explore the pathophysiology of WTS for the case series. Eight of the 10 families she analysed for the study have now moved away from their homes.

In a rare interview, Dr Pierpont, a fellow of the American Academy of Pediatrics, told The Independent on Sunday: "There is no doubt that my clinical research shows that the infrasonic to ultrasonic noise and vibrations emitted by wind turbines cause the symptoms which I am calling wind turbine syndrome. There are about 12 different health problems associated with WTS and these range from tachycardia, sleep disturbance, headaches, tinnitus, nausea, visual blurring, panic attacks with sensations of internal quivering to more general irritability.

"The wind industry will try to discredit me and disparage me, but I can cope with that. This is not unlike the tobacco industry dismissing health issues from smoking. The wind industry, however, is not composed of clinicians, nor is it made up of people suffering from wind turbines." The IoS has a copy of the confidential manuscript which is exhaustive in its research protocol and

detailed case series, drawing on the work of leading otolaryngologists and neurotologists – ear, nose and throat clinical specialists.

Some of the earliest research into the impact of low-frequency noise and vibrations was undertaken by Portuguese doctors studying the effects on military and civil personnel flying at high altitudes and at supersonic speed. They found that this exposure may also cause the rare illness, vibroacoustic disorder or VAD, which causes changes to the structure of certain organs such as the heart and lungs and may well be caused by vibrations from turbines. Another powerful side effect of turbines is the impact which the light thrown off the blades – known as flicker – has on people who suffer from migraines and epilepsy.

Campaigners have consistently argued that much research hitherto has been based on written complaints to environmental health officers and manufacturers, not on science-based research. But in Denmark, Germany and France, governments are moving towards building new wind farms off-shore because of concern over the potential health and environmental risks. In the UK there are no such controls, and a growing number of lobbyists, noise experts and government officials are also beginning to query the statutory noise levels being given to councils when deciding on planning applications from wind farm manufacturers. Lobbyists claim a new method of measuring is needed.

Dr Pierpont, who has funded all the research herself and is independent of any organisation, recommends at least a 2km set-back distance between potential wind turbines and people's homes, said: "It is irresponsible of the wind turbine companies – and governments – to continue building wind turbines so close to where people live until there has been a proper epidemiological investigation of the full impact on human health.

"What I have shown in my research is that many people – not all – who have been living close to a wind turbine running near their homes display a range of health illnesses and that when they move away, many of these problems also go away."

A breakthrough into understanding more of the impact of vibrations came last year, she said, when scientists at Manchester University and Prince of Wales Clinical School and Medical Research Institute in Sydney showed that the normal human vestibular system has a fish or frog-like sensitivity to low-frequency vibration. This was a turning point in understanding the nature of the problem, Dr Pierpont added, because it overturns the orthodoxy of the current way of measuring noise. "It is clear from the new evidence that the methods being used by acousticians goes back to research first carried out in the 1930s and is now outdated."

Dr Pierpont added that the wind turbine companies constantly argue that the health problems are "imaginary, psychosomatic or malingering". But she said their claims are "rubbish" and that medical evidence supports that the reported symptoms are real.

**Case study: 'My husband had pneumonia, my father-in-law had a heart attack. Nobody was ill before'**

*Jane Davis, 53, a retired NHS manager, and her husband, Julian, 44, a farmer, lived in Spalding, Lincolnshire, until the noise of a wind farm 930m away forced them to leave*

"People describe the noise as like an aeroplane that never arrives. My husband developed pneumonia very quickly after the turbines went up, having never had chest problems before. We suffer constant headaches and ear nuisance. My mother-in-law developed pneumonia and my husband developed atrial fibrillation – a rapid heartbeat. He had no pre-existing heart disease. Our blood pressure has gone up. My father-in-law has suffered a heart attack, tinnitus and marked hearing loss.

" I understand this can be regarded as a coincidence, but nobody was ill before 2006."

### **The defence: 'Wind turbines are quiet and safe'**

The British Wind Energy Association, UK's biggest renewable energy trade association, said last night: "One of the first things first-time visitors to wind farms usually say is that they are surprised how quiet the turbines are.

"To put things in context: the London Borough of Westminster registered around 300,000 noise complaints from residents in 2008, none from wind turbines. The total number of noise complaints to local councils across the country runs into millions.

"In contrast, an independent study on wind farms and noise in 2007 found only four complaints from about 2,000 turbines in the country, three of which were resolved by the time the report was published.

"Wind turbines are quiet, safe and sustainable. It is not surprising that, according to a DTI report, 94 per cent of people who live near wind turbines are in favour of them. There is no scientific research to suggest that wind turbines are in any way harmful, and even many of the detractors of wind energy are honest enough to admit this.

"Noise from wind farms is a non-problem, and we need to move away from this unproductive and unscientific debate, and focus on our targets on reducing carbon emissions."