

# Nightmare of Night Flights

## Impact on Health

All the new evidence points in the same direction:  
night flights can damage people's health.



**The World Health Organisation's latest recommendations would rule out night flights at Heathrow on health grounds**

The new WHO Guidelines for night noise suggest two-stage approach:

- an interim target where outdoor noise, averaged out over an eight hour night, should be no higher than **55 decibels** (what is called 55 L<sub>night</sub>).
- leading to a final target where the average outdoor noise should be no higher than **40 decibels** (40 L<sub>night</sub>).

At Heathrow 55 L<sub>night</sub> is exceeded over a wide area – from at least Barnes in the east to Windsor in the west. But people further afield are also affected by night flights – remember L<sub>night</sub> is simply the area where noise *averages out* at 55 decibels or more. However, it is the *actual* noise which people can find most disturbing - particularly at night when the background noise levels are low. More than 20 miles from Heathrow the actual noise of night flights can exceed 70 decibels. The WHO guidelines make it difficult to justify night flights at Heathrow.

# Night Flights Harm Our Health

The previous Government justified night flights on the basis of outdated evidence. We summarise the old and new evidence on this page and detail it on the pages that follow.

## The New Evidence

### Key Facts

- **A 10 decibel increase in night-time aircraft noise increases the risk of high blood pressure by 14% - a key finding of an Imperial College study**
- Chronic lack of sleep produces hormones and chemicals in the body, which increase the risk of developing heart disease, strokes and other conditions such as high blood pressure and cholesterol, diabetes and obesity – a major Warwick Medical School study
- **“If you sleep less than six hours per night and have disturbed sleep you stand a 48% greater chance of developing or dying from heart disease and a 15% greater chance of developing or dying from a stroke.” – Warwick Medical School Study**
- The World Health Organisation recommends an 8 hour night so as to ensure most people get the sleep they need
- **Even if people don't wake up, there is “sufficient evidence” to show that noise increases people's heart-rate, said the World Health Organisation. In other words people's health can be affected by the noise of aircraft at night even if they do not wake up, something coming across in all recent studies.**

## The Old Evidence

### Key Flaws

- People's health may only be affected if they are woken up by night flights and go back to sleep again; not if they stay awake! So claimed the main report the previous Government used, published nearly 20 years ago. It also claimed people couldn't be stressed out by the noise while they were asleep, which has been flatly contradicted by the more recent studies.
- **Tony Blair's first aviation minister, the actress turned politician, Glenda Jackson, claimed in 1997 “the Department has no reason to doubt the validity and reliability of the methodology employed in the sleep research, or its findings.”**
- “There appears to be no hard scientific evidence of significant health impairment” claimed another study commissioned by the Government and published over 10 years ago. Again, flatly contracted by the new studies.
- **More research is needed into “the hypothetical relationship between sleep disturbance and long-term health effects.” Yet another study commissioned by the Government and also published more than a decade ago grudgingly admitted. The previous Government never commissioned more research.**

# The New Evidence: key studies

## The HYENA Study

HYENA (1), published in 2008, is an international study carried out by Dr Lars Jarup and his team at Imperial College in London. It looked at 4,861 people aged between 45 and 70 who had lived near Heathrow, Berlin Tegel, Amsterdam Schiphol, Stockholm Arlanda, Milan Malpensa and Athens Eleftherios Venizelos airports for at least five years. It found that noise from night flights causes immediate increases in blood pressure in sleeping people, even if they are not woken up by the noise. It discovered a 14% increase in the risk of high blood pressure (hypertension) for each 10 decibel increase in night-time aircraft noise. Hypertension can lead to heart problems and even early death.

## Warwick University Study

New research from Warwick Medical School published in the *European Heart Journal* (2) in February 2011 is based on the experiences of hundreds of thousands of people across eight countries. Chronic lack of sleep produce hormones and chemicals in the body, which increases the risk of developing heart disease, strokes and other conditions such as high blood pressure and cholesterol, diabetes and obesity, according to Dr Michelle Miller of the University of Warwick. She and Professor Francesco Cappuccio, who co-authored the report, followed up evidence spanning seven to 25 years from more than 470,000 participants across eight countries, including Japan, the US, Sweden and the UK. Professor Francesco Cappuccio said: "If you sleep less than six hours per night and have disturbed sleep you stand a 48% greater chance of developing or dying from heart disease and a 15% greater chance of developing or dying from a stroke.

## The World Health Organisation Study

The World Health Organisation (WHO) Study, *Night Noise Guidelines for Europe* (3), published in 2009, found:

- If sleep is regularly disturbed for any reason, it has an effect on people's health.
- Even if people don't wake up, there is "sufficient evidence" to show that noise increases people's heart-rate, exactly the same finding as the HYENA Report.
- People whose sleep is regularly disturbed take more medicines.
- There is some, but "limited", evidence that noise at night can cause heart problems, depression and other mental illness.
- Children, including babies, because they spend longer in bed, are "considered a risk group" even though they usually sleep through noise better than adults.
- Since older people, pregnant woman and ill people find sleeping more difficult, they are particularly vulnerable to being disturbed by night noise.

### References

- (1). *Hypertension and exposure to noise near airports*, Jarup et al, 2008
- (2). *European Heart Journal*, Feb, 2011 - <http://www.mattasons.com/tag/european-heart-journal/>
- (3). *Night Noise Guidelines for Europe*, World Health Organisation, 2009

For a good summary of these studies and others, *Health Consequences of Aircraft Noise*, Kalternback et al

## **The New Evidence: Why eight hours is important**

A study undertaken by the Centre for Time Use Research, published in 2006 ([www.timeuse.org/access/](http://www.timeuse.org/access/)) showed that adults spend around 7.5 hours in bed. The amount of time they are actually asleep is shorter. But, due to personal factors like age, there is considerable variation in the amount of sleep people need. To allow for this, the World Health Organisation recommends an 8 hour night which would protect around 50% of the population - it would take a period of 10 hours to protect 80%. On Sundays, sleeping time is consistently 1 hour longer. Young children also have longer sleeping times.



## **The Old Evidence: key studies**

### **Ollerhead**

The key piece of research was carried out by Dr John Ollerhead and published in 1992 (4). Its key assumption – that people’s health might only be affected if they were woken up by night flights – is challenged by the new studies. Bluhm and Nording in their review of Swedish studies concluded: “Sleep disorders in the form of waking up are little suited for evaluation purposes since their avoidance is insufficient for the prevention of long-term health hazards” (*Community Noise and blood pressure*, Bluhm and Nording, *Internoise Review* 2006). Ollerhead did accept that some people may be woken by aircraft noise but went on to argue that only if the person goes back to sleep after being woken does it count as sleep disturbance. If a person stayed awake after being woken up that does not count - even if the reason s/he cannot get back to sleep again is noise from more aircraft! This sort of strange logic was comprehensively rejected by the Inspector at the Terminal Five Inquiry as far back as the late 1990s.

Despite the huge number of complaints from people under the flight paths which seemed to contradict Ollerhead’s findings, they were accepted by the last Government. Tony Blair’s first aviation minister, the actress turned politician, Glenda Jackson, went as far as to “reiterate that the Department has no reason to doubt the validity and reliability of the methodology employed in the 1992 sleep research, or its findings”.

### **Two Further Studies**

Under pressure, the last Government commissioned two further studies. The *Adverse effects of night-time aircraft noise* (5) which continued to argue that “there appears to be no hard scientific evidence of significant health impairment”. *Aircraft noise and sleep disturbance* (6), which concentrated on the periods just after people go to sleep and before they wake up, edged towards the fact the night noise may damage health by recommending further research into “the hypothetical relationship between sleep disturbance and long-term health effects.”

### **References**

- (5). *Report of a Field Study of Aircraft Noise and Sleep Disturbance*, Ollerhead et al, DoT, 1992
- (6). *Adverse effects of night-time aircraft noise*, Porter et al, DORA for DETR, 2000
- (7). *Aircraft noise and sleep disturbance*, Flindell et al, CAA, 2000