

# NOISE: A PUBLIC HEALTH ISSUE

RESEARCH into ACTION  
A Knowledge Translation Initiative

The University of Texas  
Institute for Health Policy

## A COMPARISON OF NOISE LAWS IN TEXAS

How do Houston's noise laws fare compared to those of other Texas cities? (Fines are for a first offense, decibel limits are for outdoor noise.)

### Houston

Residential areas: 65 dB

Nonresidential: 68 dB

Fine: Up to \$1,000

### Dallas

"No person shall make or cause to be made any loud and raucous noise or vibration in the city ... offensive to the ordinary sensibilities ... or renders the enjoyment of life or property uncomfortable or interferes with public peace and comfort."

Fine: Up to \$2,000

### San Antonio

Residential areas: 63 dB

Nonresidential: 70 dB

Fine: Up to \$2,000

### Austin

"A person may not make an unreasonable noise ... or create sound or vibration" apparent more than 30 away.

Fine: Up to \$500, or \$2,000 if the noise is found to be a violation of public health laws.

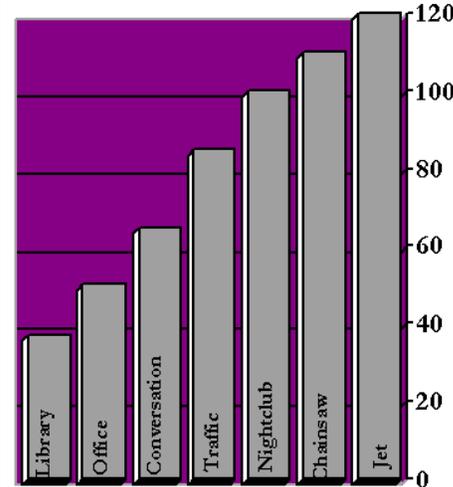
## WHY DOES ENVIRONMENTAL NOISE MATTER?

Construction, highways, railways, sirens and all of the other sounds of our modern world are a fact of life. How does this noise affect our health? Everyone knows prolonged exposure to noise can affect our hearing, but what else can it do to our bodies?

Research has found that noise has severe implications for our mental and physical health, the wellbeing of our children, and even our lives.

Heart disease, high blood pressure, high stress levels, sleep disturbances, immune system disorders, increased aggression, memory and concentration loss have all been linked to noise exposure.<sup>1</sup>

Decibel Levels of Common Sounds



## HOW NOISE CAN BREAK YOUR HEART

- men living near highway and rail noise are 3 times more likely to be hypertensive
- men exposed to loud road traffic noise were 54% more likely to be hypertensive
- nighttime exposure to 50 dB of noise (lower than the sound of a conversation) can cause cardiovascular problems<sup>2</sup>
- two to 3% of all ischemic heart disease can be attributed to traffic noise<sup>3</sup>



Exposure to environmental noise causes a higher rate of cardiovascular disease, which can include:

- myocardial infarctions
- high blood pressure
- irregular heartbeats
- high cholesterol
- high triglyceride levels
- faster pulse rates
- vascular constriction<sup>4</sup>

## WHAT ARE THE MOST COMMON NOISE SOURCES?

Noise sources can include:

- traffic/transportation
- industry
- recreation
- car alarms
- emergency service sirens
- fireworks
- lawn care equipment
- compressed air horns
- outdoor concerts
- construction
- barking dogs
- car audio systems
- mechanical equipment
- loud people
- entertainment businesses

Houston residents often experience a large amount of noise from traffic, trains, industrial areas, construction, airplanes, and many other sources. Most people think of these things as the cost of living and working in one of the largest metropolitan areas in the country.

The effect on public health, however, is huge. Many Houstonians, both adults and children, are suffering from serious health conditions caused by noise.

## THE DANGERS OF POOR SLEEP

Exposure to noise during sleep can increase blood pressure, heart rate and pulse rate as well as body movements, all of which are known to interrupt restful sleep.



What may not be so widely known is that a lack of quality sleep can also lower your immune response.

Studies show that disturbed sleep can cause immunosuppression, which means that those who don't get enough quality sleep get sick easier and for longer periods of time than those who do.<sup>5,6</sup>

Remember, just 50 decibels of noise, slightly louder than a public library, is enough to affect sleep quality and may lead to potentially harmful health conditions.

**If you don't get enough quality sleep, it can affect your mood, concentration, and reaction time.**

## HOW NOISE HURTS OUR CHILDREN

Children are especially vulnerable to the non-auditory health effects of noise, as they have less cognitive capacity to understand and anticipate stressors and develop coping skills. Research has consistently shown that primary school children who are exposed to noise perform worse in school and tend to score lower on standardized tests measuring their levels of cognitive performance.<sup>7</sup>

**Tasks that involve central processing and language comprehension ... seem most affected by exposure to noise.**

Studies have also found that children who are exposed to sustained noise have poorer class attendance and reading skills, as well as lower math scores. Children who live or go to school near a noise source (such as an airport or trains) also experience higher blood pressure levels.

Unfortunately, the high blood pressure continues as they grow into adulthood, increasing their risk for cardiovascular disease.<sup>8</sup>



<sup>1</sup> Babisch et al., 2005; City of Toronto, 2000; Jarup et al., 2008; Stansfeld and Matheson, 2003

<sup>2</sup> Jarup et al., 2008

<sup>3</sup> Barregard, Bonde and Öhrström, 2009

<sup>4</sup> Babisch et al., 2005; City of Toronto, 2000; Jarup et al., 2008; Stansfeld and Matheson, 2003

<sup>5</sup> Stansfeld and Matheson, 2003

<sup>6</sup> City of Toronto, 2000

<sup>7</sup> Haines et al., 2001; Stansfeld and Matheson, 2003

<sup>8</sup> Haines et. al., 2001; Haines et. al., 2002