

# THE EFFECTS OF MUSIC TECHNOLOGY ON HEARING: A CASE STUDY OF ST. JOHN'S BARS

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## 1. Introduction

In many of today's popular bars and dance clubs, music is played at levels which may contribute significantly to permanent hearing loss. This is disturbing, considering that many young people spend a great deal of time in these establishments. Of particular concern is the risk that loud music poses to bar employees who are regularly exposed to this excessive noise for long periods of time.

A recent study conducted in Halifax [Whitehead, 1989] found that many bars maintained music levels capable of inducing hearing damage after only a few minutes of exposure. This raised questions about the noise levels in St. John's bars. Consultations with audiologists, and other experts indicated that a potential health hazard exists, and that an investigation was warranted.

## 2. Study Outline

The study examined the relationship between hearing loss and loud music levels in bars. This relationship was investigated through the use of sound intensity readings and public opinion surveys conducted in the George Street bar district of St. John's, Newfoundland.

An important aspect of the research was to establish if bar patrons and bar employees are putting themselves at risk by spending long hours in a bar. In order to determine this, a sound level survey was conducted in fifteen popular bars and dance clubs. Readings were taken on several weekend evenings with a portable audio spectrum analyzer and a sound level meter. No advanced warning was given to bar management so as to prevent deliberate adjustment of sound levels. Peak readings were recorded using both "A" and "C" scale weightings. These results were later correlated with accepted industry standards for allowable unprotected exposure times.

In conjunction with the sound readings, three opinion surveys were conducted. Bar patrons, employees and management were surveyed to gauge each group's awareness of and concern towards the effects that loud music may have on hearing. One hundred bar patrons were interviewed using a random survey on several busy nights in St. John's major bar district. In addition, interviews were conducted with twenty bar employees and fifteen bar managers/owners who worked in the fifteen bars that were monitored. The surveys also addressed the following issues: the symptoms of temporary threshold shift experienced by employees and patrons; the frequency and effectiveness of patron

complaints; the ability of bar owners to monitor sound levels; and the adequacy of the provincial government's noise regulations for bars.

## 3. Summary of Results

### 3.1 Sound Monitoring

- a) Sound level measurements taken in fifteen bars revealed that twelve (80%) exceeded the ACGIH 1 hour exposure time limit.
- b) Average measured sound intensity levels were 111 dB C and 101.8 dB A. This corresponds to a safe unprotected exposure limit of 49 minutes.

### 3.2 Opinion Surveys

- a) Sixty percent of bar patrons admitted that they experience a "ringing" sensation after leaving a bar (temporary threshold shift (TTS)).
- b) Seventy percent of bar employees experience "ringing" after completing their work shift.
- c) Seventy-eight percent of bar patrons did not believe that loud music can have a permanent effect upon hearing.
- d) Sixty percent of bar employees responded positively to the introduction of more stringent noise regulations, however, the majority of patrons and bar owners were not in favour of any new regulations.

## 4. Conclusions

The measured sound levels, as well as the high incidence of TTS, suggest that a potential hazard exists for bar patrons and employees alike in St. John's. However, the opinion surveys indicated that there is a definite lack of awareness of the potential negative effects that loud music may have on hearing. This lack of awareness was reflected in the existing noise standards which do not adequately regulate noise levels in bars. Aside from municipal by-laws for bars near residential areas, there does not appear to be any effective regulations for sound levels within the bars themselves.

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