

生理反応に基づく音環境の快適性評価に関する研究

A study on the evaluation of acoustic comfort based on physiological responses

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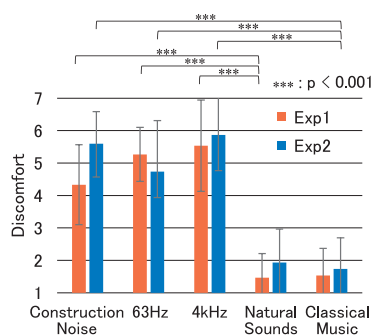


Fig.1 : Evaluation Results of Discomfort toward Auditory Stimuli

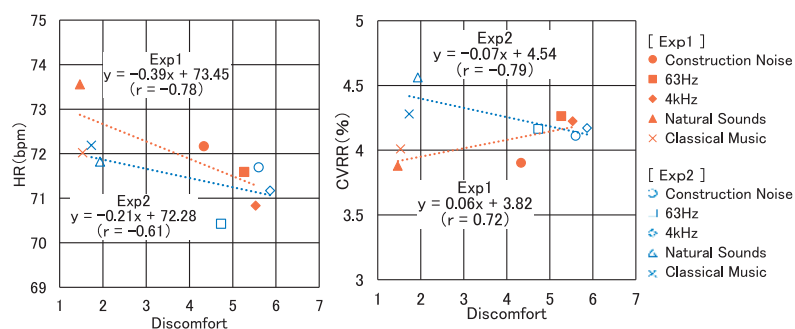


Fig.2 : Correlation with Auditory Discomfort

Two baseline conditions were set: Exp1, in which participants were exposed to 70 dB construction noise to induce stress; and Exp2, in which participants experienced a silent environment without any sound.

概要

本研究では、音刺激が人間の心理・生理反応に及ぼす影響を明らかにすることを目的とし、ストレス音源および非ストレス音源提示時における主観評価と心拍変動の対応を検討した。その結果、不快度とHR(平均心拍数)、HRの変動量、およびCVRR(心拍のばらつきを示す指標)との間に比較的高い相関が確認された。不快な音刺激に対しては心拍数が低下する傾向が見られ、一般に報告されているストレス時の心拍数の上昇とは異なる結果となった。一方、CVRRに関しては、ベースライン条件の違いにより不快度との相関の正負が逆転することを確認した。

This study aimed to clarify the effects of auditory stimuli on human psychological and physiological responses through examining the relationship between subjective evaluations and HRV during exposure to both stress-inducing and non-stressful sounds. As a result, relatively high correlations were found between unpleasantness ratings and HR(mean heart rate), HR variation, and CVRR(a measure of heart rate variability). It was observed that heart rate tended to decrease in response to unpleasant auditory stimuli, which contrasts with the commonly reported increase in heart rate under stress. In addition, the correlation between CVRR and unpleasantness was found to reverse depending on the baseline condition, suggesting that the experimental baseline setting may significantly influence physiological responses.