

Horror is a unique film genre because of its unique aesthetics as well as its intention to elicit a fearful emotional response. Since these films aim to elicit fear in the viewers, they activate neural circuitry associated with the “fight or flight” response. The amygdala is perhaps the most important region in this circuit, as it is primarily responsible for the sympathetic nervous system responses like increased adrenal activity and heart rate that accompany the emotional experience of fear. Horror films use a variety of tactics to activate that neural circuit including the frequent use of threatening weapons and masked killers, but perhaps more interestingly they may also use specific auditory queues for the same purpose.

Nonlinear audio refers to soundwaves that change pitch and volume frequently, creating the nonlinearity that can be seen when looking at their waveforms. A common example of a nonlinear sound is screaming, which is typically loud but unstable in both volume and pitch. Screams eliciting a fearful response makes sense from an evolutionary perspective, however horror films do not entirely rely on screams as sources for nonlinearity. Instrumentation and diegetic (having an on-screen source) sounds can also be used as sources for nonlinear audio.

Horror films employ unique aesthetic and psychological tactics (both visual and auditory) to elicit fear, but are they any more effective than an ecologically valid and evolutionarily conserved fearful stimuli? To investigate this, 4 conditions were created:

<b>Linear Audio – Snake Visual</b>	<b>Linear Audio – Horror Film Visual</b>
Nonlinear Audio – Snake Visual	Nonlinear Audio – Horror Film Visual

Participants were tasked with viewing sets of 5 images and determining whether their condition’s fearful stimuli (snake or horror genre) was present among those images. Their reaction time to make that determination was measured and used for analysis.

Results showed no significant main effects of audio type or fearful stimuli type but did show a significant interaction. This suggests that there is a connection between two variables, but a larger sample size would likely be better able to identify the specifics of that connection. Generally, reaction times in nonlinear audio conditions were longer than those from linear audio conditions, and horror image conditions also typically had longer response times than snake image conditions.

Ecological validity seemed to be an important factor in determining participant reaction time, but larger-scale future research could better determine how much that plays a role in the audiovisual processing of horror. Future research could also investigate different kinds of horror genre imagery to determine what stimuli are most effective.

