

# Rhythmic entrainment, syncopation and pleasantness

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Although several authors have speculated that rhythmic entrainment induces positive affect (e.g. Juslin & Västfjäll, 2008; Clayton et al. 2004), so far there is no direct experimental evidence to support this claim. Therefore, the experiment hereby reported aimed to test the hypothesis that moving in time with music induces pleasantness and that this effect interacts with the level of syncopation of the music. Six short rhythmic musical stimuli with three levels of syncopation (low, medium, high), were presented to 77 participants, who were divided into two groups: one was asked to move along with the pulse of the music (by tapping with one foot), and the other was asked to listen without moving. The changes in the participants' affective state were measured by using two techniques: self-report scales of pleasantness and arousal, and an indirect technique consisting of asking participants to evaluate the level of pleasantness expressed by emotionally ambiguous facial expressions –The perceived pleasantness works as an indicator of the observer's own affective state (Niedenthal et al., 2000)–. It was predicted that: 1) intermediate levels of syncopation would be associated with the most pleasantness, and that 2) these effects would be larger in the 'tapping' condition. The results revealed that even though the data from the indirect technique showed a trend in the predicted direction, there was a great amount of within-subjects variability which made these results unreliable. The data from self-reports supported the first prediction –participants experienced slightly higher levels of positive affect when tapping along to stimuli with a medium level of syncopation–; but not the second prediction –participants in the 'tapping' condition did not experience more pleasantness nor unpleasantness than the participants in the 'stationary' condition. No significant differences were found in any of the measures of arousal. These findings suggest that the effect of musical entrainment on the induction of pleasantness is primarily the result of the expectations aroused by syncopated rhythms, not by the movements made by the listener.

## References

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