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Abstract

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Keywords

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Intensity and trial effects from simple auditory stimuli in a dishabituation paradigm

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Aims: We investigated variations of intensity and novelty in the rarely-used auditory dishabituation paradigm. Stimulus-response (S-R) patterns were examined for autonomic and central measures and compared to the phasic skin conductance response (SCR) 'yard-stick' of the orienting reflex (OR). **Method:** Sixteen undergraduates experienced twelve 1000 Hz tones (60/80 dB, 50 ms with 15 ms rise/fall times) presented with random ISIs (45 to 70 s), and no task requirements. Subjects were counterbalanced according to the starting tone intensity. The first 10 standard trials were of one intensity, followed by a change trial at the other intensity (recovery trial), and a subsequent dishabituation trial at the initial tone. The evoked cardiac response (ECR), Respiratory Pause (RP), SCR, and single-trial ERPs from 19 sites, were collected. EOG-corrected ERP data were submitted to a temporal principal components analysis (PCA). **Results:** SCR displayed decrement, recovery, and dishabituation; intensity effects were apparent as a group x trials interaction at the recovery trial. ECR and the PCA components P1, N1-3, N1-1, PN, P3a, and SW showed no decrement. RP, P3b, and HabP3 showed decrement, but recovery was evident only in RP and HabP3. Dishabituation was apparent solely in SCR. Intensity effects were observed in SCR, P3a, and P3b. **Conclusions:** The S-R patterns of the autonomic measures were consistent with previous findings. No ERP component showed the hallmark S-R pattern of the OR. That is, fractionation of responses were found for autonomic and central measures, consistent with Preliminary Process Theory (PPT).

Keywords: orienting reflex, Preliminary Process Theory (PPT), dishabituation, Intensity, trials, Principal Component Analysis

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