6. Video Game Activity during Orthostasis on the Brain Waves in Young Adult Females: Relationship with the Pulse Rate

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BACKGROUND: Video game has evolved as a source of pleasure and entertainment. The study investigated the effect of engagement in video game activity during orthostasis on the brain waves. **METHODS:** 30 apparently healthy young females averaging 18.5years were selected for the study. The subjects were requested to stand upright (orthostasis) from resting sitting position for 5 minutes. Android Candy Crush mobile App was played while standing. Electroencephalogram was recorded using Powerlab 26T as previously reported. **RESULTS:** The results showed that video game activity during orthostasis decreased alpha wave frequency when compared to the baseline. There was also decreased alpha wave frequency during video game activity in orthostatic position when compared to video game activity at resting sitting position. Although video game activity increased beta wave frequency and decreased alpha/beta ratio when respectively compared to their baselines, engagement in video game during orthostasis significantly affected neither beta wave frequency nor alpha/beta ratio when compared to their respective baselines. There was a strong negative correlation (-0.608, $P<0.05$) between alpha/beta ratio and the pulse rate during video game activity in orthostatic position. **CONCLUSION:** The findings of the study suggest that video game activity during five-minute orthostasis caused a decrease in alpha wave activity in young females. Evaluation of emotional changes induced by video game activity is possible at different postures using electroencephalography.

Key Words: Orthostasis, Electroencephalography, Video game, Alpha wave, Beta wave, Alpha/beta ratio

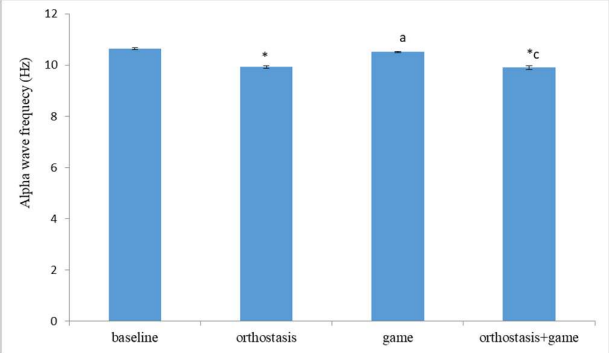

Figure 1: Effect of video game during orthostasis on alpha wave frequency. * Significant difference ($P<0.05$) from baseline. a significant difference ($P<0.05$) between 'orthostasis' and 'game'. c significant difference ($P<0.05$) between 'game' and 'orthostasis + game'.

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