

**Ready student one: Simulation-based education, virtual reality, and the perception of stress**

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## Ready Student One: simulation-based education, virtual reality, and the perception of stress

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Poster Presentations Friday Lunchtime, Exhibition Hall, October 6, 2023, 12:20 PM - 1:02 PM

**Aim:** To investigate differences in the physiological perception of physiotherapy student stress undergoing two types of simulated environments.

**Design:** Quasi-experimental

**Methods:** Students enrolled in a Doctor of Physiotherapy program were subjected to two stressors: a neurological patient simulation (SIM) and a free-roaming virtual reality (VR) immersive gaming scenario. Physiological parameters including respiratory rate, heart rate, skin temperature, salivary cortisol, and  $\alpha$ -amylase were collected prior to, immediately post, and 15, 30, and 60 minutes after each scenario. NASA-task load index (TXL) assessed participants' perceptions of stress prior to, and at the end of, each scenario. Repeated measures linear mixed model analysed the impact of sampling time, stressor, and their interaction on the physiological parameters and NASA-TXL.

**Results:** The VR experience elicited a marked increase in cortisol concentration (1.7nmol/L SE 0.8,  $p=0.045$ ) from baseline, but not  $\alpha$ -amylase, levels immediately after the task. The SIM experience did not influence the concentration of salivary stress markers, although  $\alpha$ -amylase concentrations were higher in samples obtained pre-SIM compared to pre-VR samples. NASA-TXL results indicated that students perceived themselves as performing worst and being more stressed, frustrated, and insecure prior to, and after, the SIM compared to the VR task.

**Conclusion:** The SIM scenario had a greater anticipatory perceived stress while the VR immersive gaming experience highlighted greater post-event physiological response to stress.

**Key Practice Points:**

- Combination of VR and SIM may better portray the totality of the stress response that may be experienced by students in clinical education, including both anticipatory and task-associated stress response.