

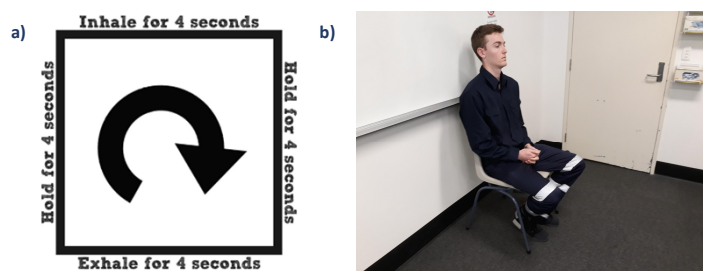
# Investigating the Effects of a Mind-Body Practice on the Stress Response of Undergraduate Paramedic Students: A Pilot Randomised Controlled Trial

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## BACKGROUND

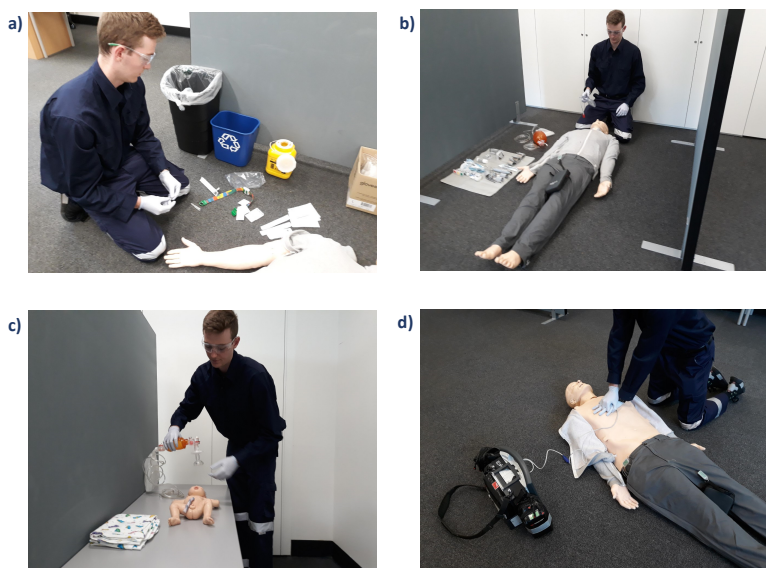
Previous research has reported a high prevalence of anxiety and stress in the paramedic student population with little or no education aimed at managing stress during acutely stressful situations.<sup>1,2</sup> Mindful breathing is a mind-body practice that has been shown to positively influence physiological and psychological measures of stress.<sup>3,4</sup> This study aimed to investigate the effects of mindful breathing on the physiological and psychological stress response of undergraduate paramedic students during simulated clinical skills performance.



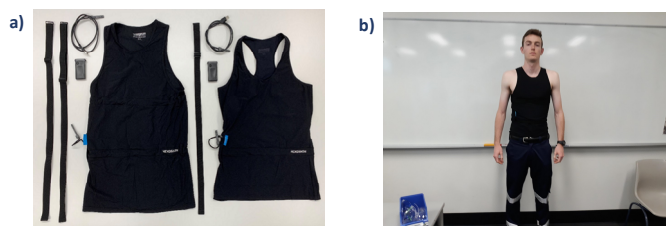
a) Method of mindful breathing<sup>5</sup>, b) Application of the mindful breathing technique

## METHODS

Sixteen undergraduate paramedic students had biometric and other data collected at baseline, pre-intervention, and post-intervention. Participants completed four simulation-based clinical skills during the pre- and post-intervention sessions: adult peripheral intravenous cannulation (IV), adult supraglottic airway insertion (SGA), infant bag-valve mask resuscitation (BVMR), and adult cardiopulmonary resuscitation (CPR). Half the participants were randomised to mindful breathing training (intervention), while the other half received no training (control). Physiological stress was quantified via heart rate (HR), respiratory rate (RR), heart rate variability (HRV), and blood pressure (BP); psychological stress was quantified via self-reported anxiety. The Hexoskin™ biometric shirt measured HR, RR, and HRV; the CorpulS<sup>3</sup> monitor measured BP; and the six-item state-trait anxiety inventory (STAI-6) questionnaire measured anxiety.



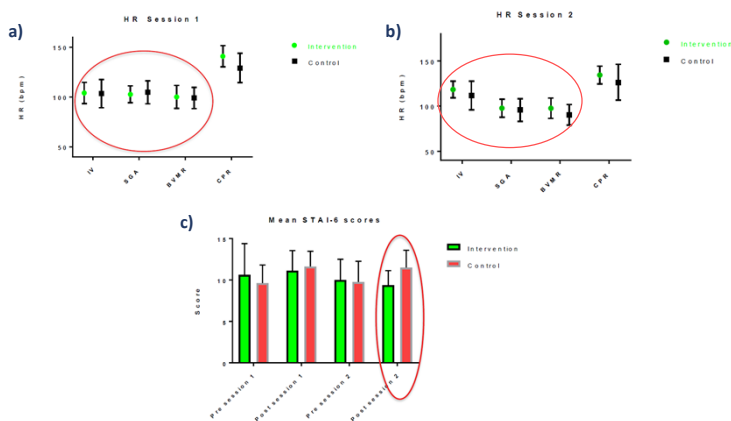
a) Adult peripheral intravenous cannulation skill, b) Adult supraglottic airway insertion skill, c) Infant bag-valve mask resuscitation skill, d) Adult cardiopulmonary resuscitation skill



a) Male (left) and female (right) Hexoskin™ shirts, b) Hexoskin™ shirt donned

## RESULTS & CONCLUSIONS

Results revealed no significant difference between intervention and control groups for HR mean or maximum, RR mean, HRV, and BP. However, participants in the intervention group reported feeling significantly more relaxed than those in the control group post-intervention ( $p=0.04$ ). Significant increases in HR mean and maximum were observed between baseline and pre-intervention ( $p<0.001$ ) and baseline and post-intervention ( $p<0.001$ ). While this can partially be explained by the physical exertion from CPR, skills requiring minimal physical effort (IV, SGA, and BVMR) also displayed large increases compared to baseline.



a) HR mean by skill for the pre-intervention session, b) HR mean by skill for the post-intervention session, c) STAI-6 mean score by pre- and post-session

In conclusion, while physiological parameters were comparable between groups, students who practiced mindful breathing reported decreased psychological stress. Both groups experienced increased physiological stress during skill sessions when compared to baseline.

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## ACKNOWLEDGEMENTS

The authors acknowledge Lloyd Herbert and Dave Wood for their assistance in organising the mindful breathing intervention. The authors also acknowledge the support of Monique Hatchman, Dana Supramaniam, as well as Lifecast Body Simulation Ltd.