

Improvements in Performance and Self-Efficacy of Hands-Only CPR Following A Brief Training



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Introduction

- An estimated 356,000 adults experience out-of-hospital cardiac arrests (OHCA) yearly in the United States, with 18% of those occurring in public locations.¹
- Survival for adult OHCA is low overall, as nationally only 8% survive to discharge with favorable neurological outcomes.¹
- Early, high-quality CPR remains vital for improving outcomes and is associated with good quality of life post-OHCA.^{1,2}
- Brief CPR training has been shown to increase compression quality, readiness to perform CPR, and the time spent performing chest compressions^{3,4}, and these benefits are amplified when learners receive real-time feedback.⁵

Objective

- To determine whether brief hands-only CPR (HOCPR) training improves self-efficacy and CPR performance among college-aged participants in a free and voluntary on-campus first-aid course regardless of previous training experience.

Methods

Sample

- Convenience sample of students who participated in a first aid workshop held on campus in 2025.

Procedure

- Participants completed a 2-part electronic survey before & after a brief (<10 minute) standardized HOCPR training.
- Pre-training survey included questions on demographics, self-efficacy with CPR, and whether the participant had received prior CPR training.
- Participants then completed a 1-minute CPR assessment on a Laerdal Little Anne Adult CPR Manikin.
- Following training, participants complete a post survey and performed a second minute of monitored HOCPR.

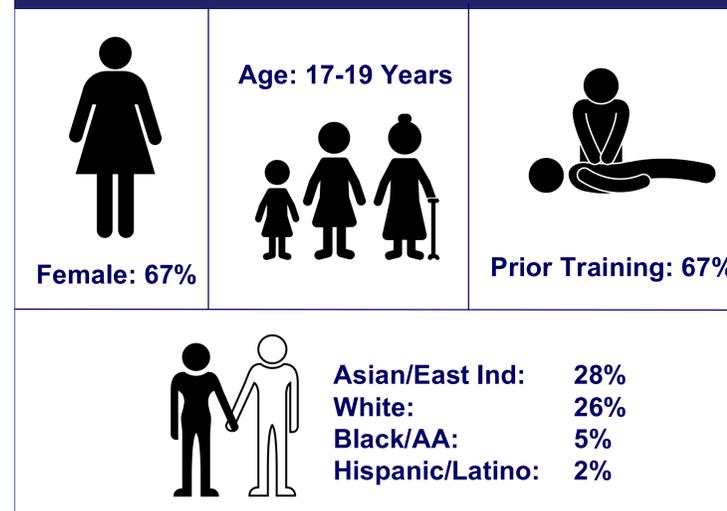
Outcome Variables

- Self-efficacy was measured by evaluating the participants' comfort level performing CPR using a 1–5 Likert scale.
- CPR performance data included:
 - Average Compression Rate
 - Average Compression Depth
 - Percentage of Full Chest Recoil

Data Analysis

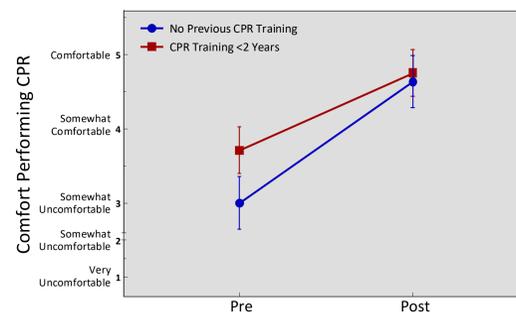
- 2-way analysis of variance in repeated measures where prior training was a fixed factor and survey time was the repeated measure.

Sample Demographics



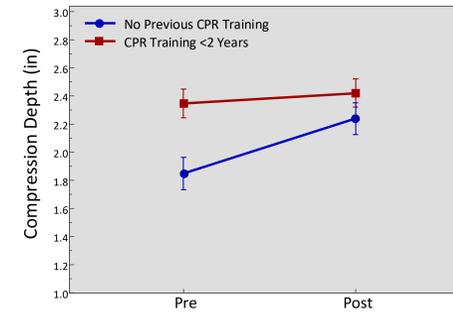
Results

Comfort with Performing CPR



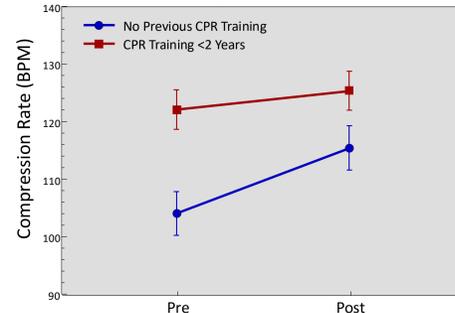
- Participants who had prior training started out more comfortable compared to those with no previous training (2.7 vs 2.0, p=.02).
- Regardless of training, both groups had an increase in their comfort level after training to 3.6. (95% CI: 3.4-3.9, p<0.001).

Compression Depth



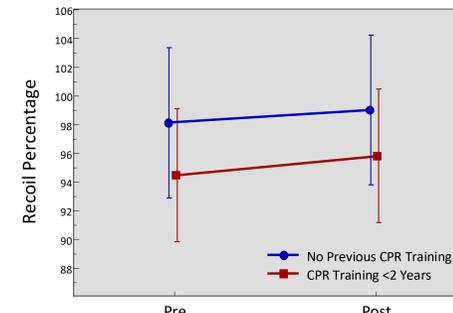
- Participants who had prior CPR training compared to those with no training had higher compression depth prior to training (2.3 vs 1.8 inches, p<.0001).
- Participants with no prior training had a significant increase in compression depth post training (1.8 to 2.2 inches, p<.0001), whereas there was no change in those with prior training.

Compression Rate



- Participants who had prior CPR training compared to those with no training had a higher compression rate prior to training (122 vs 104 BPM, p<.0001).
- Participants with no prior training had a significant increase in compression rate post training (104 vs 115 BPM, p<.0001), whereas there was no change in those with prior training.
- Participants with prior CPR training also had higher compression rates post training compared to those no prior training (125 vs 115, p=.002).

Recoil Percentage



- There was no difference between pre/post training in recoil percentage regardless of previous training (96.3% vs 97.4%, p=.65).
- There was also no difference at each survey time between prior CPR training and no training.

Discussion

- In this study, we confirm that a brief CPR training in a collegiate setting improves participant reported self-efficacy and compression performance after the training.
- Our focus on exploring a brief CPR lesson is centered around a community engagement model that supports increased accessibility to college students with low cost and time commitment barriers.
- Optimizing a brief training program will ultimately serve to maximize the number of learners who are empowered with the ability to perform CPR.
- This model is cost-effective and feasible to reproduce in most collegiate and community settings.
- Data showed that if recent training did not occur, a brief 10-minute training empowered participants to achieve the same level of competence and self-efficacy as an individual who had formal CPR training in the past 2 years.
- Further, compression performance tends to decline within 12-24 months after training especially without a refresher course. Future research should thus assess retention amongst the same population one year into the future.

Conclusions

A brief HOCPR training significantly improves self-efficacy in all trainees and compression depth in those without recent CPR training.

References

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