

## CORRESPONDENCE

## RESUSCITATION

## Comparison of two techniques in quality chest compressions

Hamid Heidarzadeh <sup>1</sup>✉, Abbas Moradi <sup>2\*</sup>

### Author affiliations:

1. Department of Nursing, Faculty of Nursing and Midwifery, Ilam University of Medical Sciences, Ilam, Iran. {ORCID:0000-0002-1192-6592}

2. Department of Perfusion, Rajaie Cardiovascular Medical and Research Center, Iran University of Medical Sciences, Tehran, Iran.

**Correspondence:** Abbas Moradi; E-mail: hheidarzadeh20@gmail.com; Phone: +989391007892

**Key words:** Chest compression; Quality; ROSC; Resuscitation

**Citation:** Heidarzadeh H, Moradi A. Comparison of two techniques in quality chest compressions. *Anaesth. pain intensive care* 2021;25(4):552–553, DOI: 10.35975/apic.v25i4.1579

Chest compression is recommended as one of the initial and urgent resuscitation measure necessary for the victim to survive.<sup>1</sup> However, return of spontaneous circulation (ROSC) and ultimate survival depends upon the quality and effectiveness of chest compression in resuscitation.<sup>2</sup> Many factors affect the quality of chest compression, including compressing at the right place (at an imaginary line between the nipples that crosses the breast cleft), the number of compressions (100-120 per min), adequate depth (5–6 cm), minimizing interruptions, allowing adequate chest recoil after each compression, and how both of the hands are positioned during chest compression.<sup>3,4</sup>

The 2010 American Heart Association Guidelines for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care recommend that chest compression in adults during cardiopulmonary resuscitation be done with the palm of the dominant hand in contact with the sternum and the non-dominant hand placed over it.<sup>5</sup> The author's recent experience in training the emergency cardiovascular care nursing and emergency medicine students, has shown that the most students tend to place a non-dominant hand on the sternum. Cardiopulmonary

resuscitation training was performed on advanced mannequins. Since advanced mannequins assess the quality of chest compression using instant feedback, the quality of chest compression can be easily and accurately assessed. When the non-dominant hand was placed on the mannequin sternum area, we observed that chest compression was more effective, while the students felt more comfortable and got less tired. Conversely, when the dominant hand was placed on the sternum area of the mannequin, we observed that the chest compression was comparatively ineffective. At the end of each course, students' skills were assessed using a checklist. The results showed that 96.77% of nursing students and 97.14% of emergency medical students performed effective chest compression when they placed the non-dominant hand over the sternum (Table 1). We suggest considering the importance of high chest compression quality, with dominant hand over the non-dominant one, in successful ROSC. We recommend more studies on mannequins as well as in in-hospital resuscitation to further evaluate the quality of chest compression according to our observation.

**Conflicts of interest:** None declared.

Table1: **Comparative quality of chest compressions with dominant vs, non-dominant hand on the sternum**

Variables	Nursing Students	Emergency medical students	Total
Effective chest compressions	120 (%96.77)	4 (3.22%)	124 (100%)
Ineffective chest compressions	34 (97.14%)	1 (2.85%)	35 (100%)

*Data are presented as Frequency (percentage).*

## References

1. Rolston DM, Li T, Owens C, Owens C, Haddad G, Palmieri TJ, Blinder V, et al. Mechanical, Team-Focused, Video-Reviewed Cardiopulmonary Resuscitation Improves Return of Spontaneous Circulation After Emergency Department Implementation. *J Am Heart Assoc.* 2020 Mar 17;9(6):e014420. [PubMed] PMID: [PMC7335530](#) DOI: [10.1161/JAHA.119.014420](#)
2. Tsou J-Y, Kao C-L, Hong M-Y, Chang C-J, Su F-C, Chi C-H. How does the side of approach impact the force delivered during external chest compression? *Am J Emerg Med.* 2021;48:67-72. [PubMed] DOI: [10.1016/j.ajem.2021.03.085](#)
3. Loomba RS, Nijhawan K, Aggarwal S, Arora RR. Dominant Versus Nondominant Hand Cardiopulmonary Resuscitation: Is There Really True Dominance? *Am J Ther.* 2017;24(5):e570-e3. [PubMed] DOI: [10.1097/MJT.0000000000000304](#)
4. Kaminska H, Wieczorek W, Matusik P, Czyzewski L, Ladny JR, Smereka J, et al. Factors influencing high-quality chest compressions during cardiopulmonary resuscitation scenario, according to 2015 American Heart Association Guidelines. *Kardiol Pol.* 2018;76(3):642-7. [PubMed] DOI: [10.5603/KP.a2018.0003](#)
5. Kleinman ME, de Caen AR, Chameides L, Atkins DL, Berg RA, Berg MD, et al; Pediatric Basic and Advanced Life Support Chapter Collaborators. Part 10: Pediatric basic and advanced life support: 2010 International Consensus on Cardiopulmonary Resuscitation and Emergency Cardiovascular Care Science With Treatment Recommendations. *Circulation.* 2010;122(16 Suppl 2):S466-515. [PubMed]. DOI: [10.1161/CIRCULATIONAHA.110.971093](#)