

IS THERE ANY DIFFERENCE BETWEEN DIFFERENT INFANT CHEST COMPRESSION METHODS?

Togay Evrin¹, Karol T. Bielski²

¹Department of Emergency Medicine, Ufuk University Medical Faculty, Dr Ridvan Ege Education and Research Hospital, Ankara, Turkey
²Regional Medical Emergency Service and Ambulance Transport, Warsaw, Poland

Disaster Emerg Med J 2017; 2(4): 173–174

Dear Editor,

Although sudden cardiac arrest in neonates is a rare situation, it is associated with a poor prognosis. The current guidelines for resuscitation developed in 2015 by the European Society of Cardiology recommend two methods of chest compressions in neonates [1, 2]. The first is recommended when performing a cardiopulmonary resuscitation alone, namely the two-finger method. The paramedic performs chest compressions usually with the middle and index fingers and places them on the child's chest. The second method involves the use of two thumbs, the paramedic embraces the back of the patient with both hands, and with his/her thumbs performs chest compressions. Although different, both methods have both pros and cons. In the case of the two-finger compression method, while numerous studies indicate that the depth of compressions is insufficient, there is a high percentage of correct chest relaxations. In contrast to this, although the two-thumb method allows for appropriate compression depth, due to the position of the hands and the physiology of pressure, the degree of full chest relaxation is insufficient. Recently a study by Smerek et al. has been published, where a promising new technique of compressing a neonate's chest is described, merging the two methods mentioned above. Smerek et al.'s original method is based on vertical chest compressions utilizing two straight thumbs (Fig. 1). Thanks to this, both the appropriate depth of chest compressions and a high percentage of correct chest relaxations are obtained [3, 4].

In addition, Smerek et al. [5], in their study on the optimal position of the paramedic relative to the patient while performing cardiopulmonary

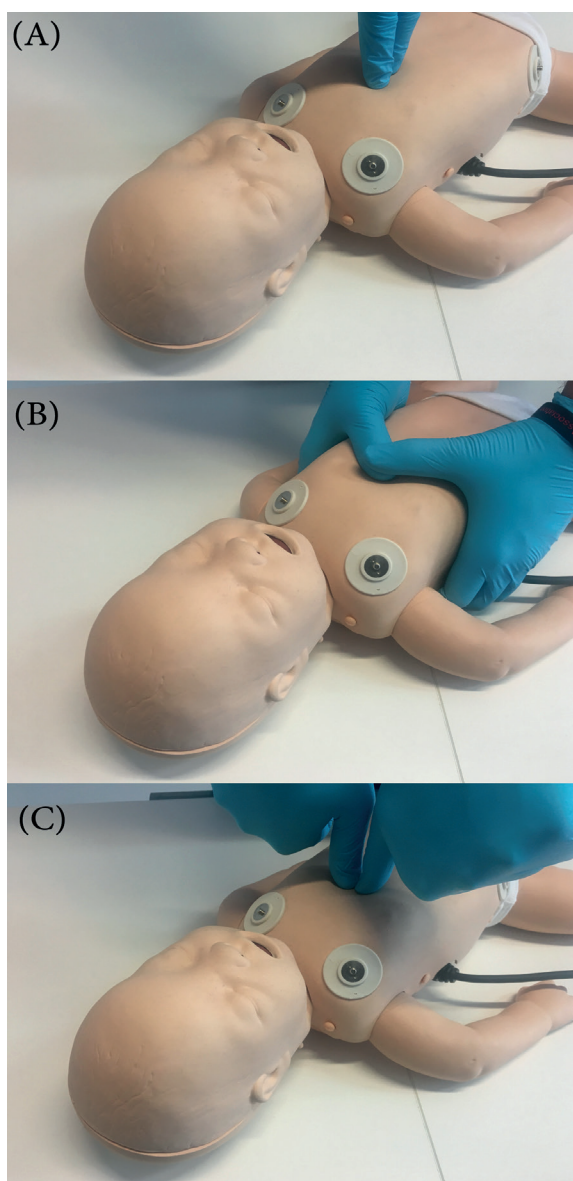


FIGURE 1. (A) Chest compression using the two-finger technique; (B) Chest compression using the two-thumb technique; (C) Novel method of chest compression using the two-thumb technique

ADDRESS FOR CORRESPONDENCE:

Karol T. Bielski, Regional Medical Emergency Service and Ambulance Transport, Warsaw, Poland; e-mail: karol.bielski.ems@gmail.com

resuscitation, indicated that the most optimal technique of resuscitation is when a newborn is placed on the paramedic's forearm. This position is the most optimal for single paramedic resuscitation both in the context of the quality of chest compressions, as well as allowing a paramedic to seek help without stopping resuscitation.

In conclusion, training according to the most recent scientific discoveries in the cardiopulmonary resuscitation of neonates are necessary, as well as further research for the most optimal method of resuscitation, especially for those immediately after birth.

REFERENCES

1. Wyckoff MH, Aziz K, Escobedo MB, et al. Part 13: Neonatal Resuscitation: 2015 American Heart Association Guidelines Update for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care. *Circulation*. 2015; 132(18 Suppl 2): S543–S560, doi: [10.1161/CIR.0000000000000267](https://doi.org/10.1161/CIR.0000000000000267), indexed in Pubmed: [26473001](https://pubmed.ncbi.nlm.nih.gov/26473001/).
2. Wyllie J, Bruinenberg J, Roehr CC, et al. European Resuscitation Council Guidelines for Resuscitation 2015: Section 7. Resuscitation and support of transition of babies at birth. *Resuscitation*. 2015; 95: 249–263, doi: [10.1016/j.resuscitation.2015.07.029](https://doi.org/10.1016/j.resuscitation.2015.07.029), indexed in Pubmed: [26477415](https://pubmed.ncbi.nlm.nih.gov/26477415/).
3. Smereka J, Szarpak L, Rodríguez-Núñez A, et al. A randomized comparison of three chest compression techniques and associated hemodynamic effect during infant CPR: A randomized manikin study. *Am J Emerg Med*. 2017; 35(10): 1420–1425, doi: [10.1016/j.ajem.2017.04.024](https://doi.org/10.1016/j.ajem.2017.04.024), indexed in Pubmed: [28433454](https://pubmed.ncbi.nlm.nih.gov/28433454/).
4. Smereka J, Bielski K, Ladny JR, et al. Evaluation of a newly developed infant chest compression technique: A randomized crossover manikin trial. *Medicine (Baltimore)*. 2017; 96(14): e5915, doi: [10.1097/MD.00000000000005915](https://doi.org/10.1097/MD.00000000000005915), indexed in Pubmed: [28383397](https://pubmed.ncbi.nlm.nih.gov/28383397/).
5. Smereka J, Kaminska H, Wiczorek W, et al. Which position should we take during newborn resuscitation? A prospective, randomized, multicentre simulation trial. *Kardiol Pol*. 2018 [Epub ahead of print], doi: [10.5603/KPa2018.0030](https://doi.org/10.5603/KPa2018.0030), indexed in Pubmed: [29350383](https://pubmed.ncbi.nlm.nih.gov/29350383/).