

# The effect on quality of chest compressions and exhaustion of a compression-ventilation ratio of 30:2 versus 15:2 during cardiopulmonary resuscitation - A randomised trial.

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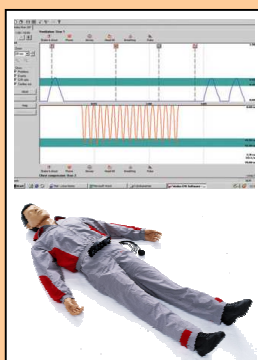
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## Introduction:

Chest compressions in the ratio 30:2 might be more exhausting compared to the former 15:2 ratio. This might negatively influence the quality of chest compressions. We compared the quality of chest compressions and exhaustion for both ratios.



## Methods:

A prospective, randomised crossover design was used. Each participant performed 5 minutes of CPR using either the ratio 30:2 or 15:2, then after a 15 minute rest switched to the other ratio. The data were collected using a questionnaire and one adult resuscitation manikin (Ambu<sup>®</sup>Man with Ambu<sup>®</sup>CPR softwarekit version 2.3.) The outcomes included exhaustion as measured by a Visual Analogue Scale (VAS), depth of chest compressions, rates of chest compressions, total number of chest compressions and number of correct chest compressions.

## Results:

138 subjects participated in the study. The VAS for exhaustion was 5.9 (IQR 2.25) for the ratio 30:2 vs. 4.5 (IQR 2.88) for the ratio 15:2 ( $P<0.001$ ).

The 30:2 ratio was more exhausting for 85 subjects (61.6%), 15:2 for 39 subjects (28.3%), the same for 9 subjects (6.5%), no idea / missing for 5 subjects (3.6%).

The compression depth was 40.5 mm (IQR 15.75) for 30:2 and 41 mm (IQR 15.5) for 15:2 ( $P=0.5$ ).

The compression rate was 118 beats/min (IQR 29) for 30:2 and 115 beats/min (IQR 32) for 15:2 ( $P=0.02$ ).

The total number of compressions/5min was 347(IQR 79) for 30:2 and 244 compressions/5min (IQR 72.5) for 15:2 ( $P<0.001$ )

The number of correct compression/5min was 61.5 (IQR 211.75) for 30:2 and 55.5 (IQR 142.75) for 15:2 ( $P=0.001$ ).

Table	30:2	15:2	P
Exhaustion score using the VAS	5.9 (IQR 2.25)	4.5 (IQR 2.88)	<0.001
The more exhausting technique	85 (61.1%)	39 (28.3%)	
Compression depth (mm)	40.5 (IQR 15.75)	41(IQR 15.5)	0.5
Compression rate (beats/min)	118 (IQR 29)	115 (IQR 32)	0.02
Total number of compressions/5min	347 (IQR 79)	244 (IQR 72.5)	<0.001
Total number of correct compressions/5min	61.5 (IQR 211.7)	55.5 (IQR 142.7)	0.001

## Conclusion :

**Although the 30:2 ratio is rated to be more exhausting , the 30:2 technique delivers more chest compressions and the quality of chest compressions remains unchanged.**

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