LUCAS® Chest Compression System: Operational Benefits

LUCAS chest compression system: Consistent, high-quality chest compressions during patient movement and transportation.

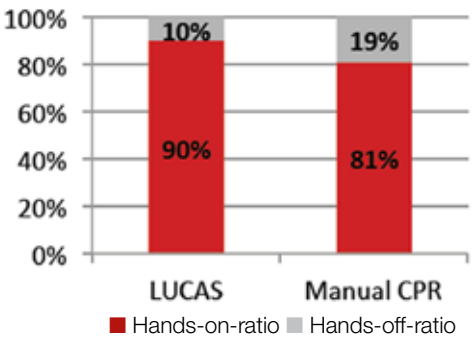
Whether it's up or down stairs, to and from the ambulance or during transport to the hospital, some cardiac arrest patients will need to be moved during ongoing CPR. However, it's well-known that it is almost impossible to provide effective CPR without interruption during transportation.

The LUCAS device makes it possible to improve chest compression quality and provide effective, consistent compressions with minimal interruption during patient movement and transportation.

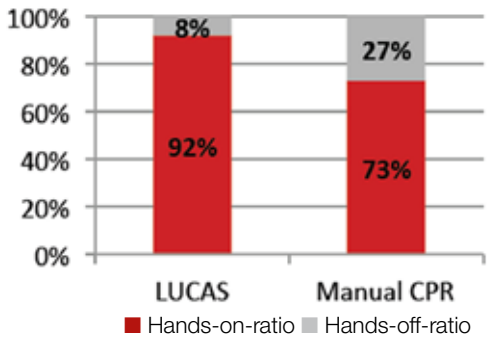
As long as the LUCAS device and the patient are safely positioned on the transportation device (backboard, carry sheet, scoop stretcher, etc.) and the device stays in the correct position and angle on the patient's chest, it can stay active and continue to provide high-quality compressions while a patient is moved. When carrying a patient down stairs, extra fixation or straps from the LUCAS device to the transportation device may be required. The position of the suction cup should be checked frequently. Users should always remember to attach the LUCAS stabilization strap and pause and readjust the suction cup as necessary.

The LUCAS device improves CPR quality and increases chest compression fraction time—on-scene, during transport and throughout the entire resuscitation.

On-Scene[1]



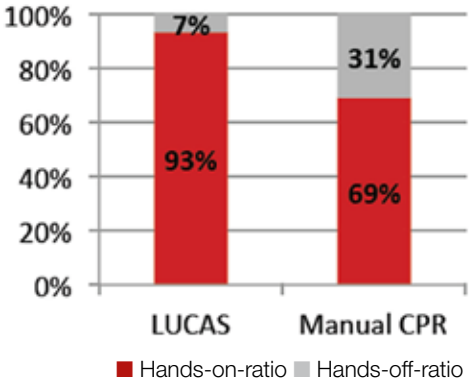
During Transport[1]



"Patients treated with mechanical chest compressions received **higher quality CPR** than those treated with manual chest compressions. Hands-off ratios were significantly lower both before and during transport…"

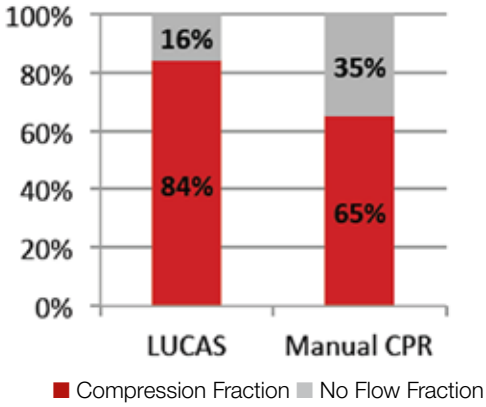
Entire Resuscitation

93% hands-on ratio with LUCAS device compared to 69% with manual chest compressions[2]



Before and After LUCAS Application

Study evaluating performance and quality of both manual CPR and LUCAS CPR in the same patients[3]



"Mechanical chest compressions provided by the LUCAS device improve CPR quality by significantly reducing the NFF (no flow fraction) and by improving the quality of chest compression compared to manual CPR during OHCA resuscitation."[3]

"The low NFF with the LUCAS device may also have been achieved owing to fewer interruptions while loading the patient into the ambulance and during transport with ongoing resuscitation."[3]

For adequate tissue oxygenation, it is essential that healthcare providers minimize interruptions in chest compressions and therefore maximize the amount of time chest compressions generate blood flow.

Chest compression fraction (CCF) is the proportion of time that chest compressions are performed during a cardiac arrest. The duration of arrest is defined as the time cardiac arrest is first identified until time of first return of sustained circulation. To maximize perfusion the 2010 AHA and ERC Guidelines recommend minimizing pauses in chest compressions.[4,5] Expert consensus is that a CCF of 80% is achievable in a variety of settings. Data on out-of-hospital cardiac arrest indicate that lower CCF is associated with decreased ROSC and survival to hospital discharge.[6]

REFERENCES

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