

LUCAS™ Chest Compression System

Guidelines for Chest Compressions

Excerpts from: 2005 American Heart Association Guidelines for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care
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Chest Compression Definition

"Consist of rhythmic applications of pressure over the lower half of the sternum. These compressions create blood flow by increasing the intrathoracic pressure and directly compressing the heart."

Importance of Proper Chest Compressions

"Blood flow generated by chest compressions delivers a small but critical amount of oxygen and substrate to the brain and myocardium."

"In victims of VF SCA, chest compressions increase the likelihood that a shock (i.e., attempted defibrillation) will be successful."

"Chest compressions are especially important if the first shock is delivered ≥ 4 minutes after collapse."

Physiology of Chest Compressions

"Researchers at the 2005 Consensus Conference... reached several conclusions about chest compressions:

1. 'Effective' chest compressions are essential for providing good blood flow during CPR (Class I).
2. To give 'effective' compressions, 'push hard and push fast.' Compress the adult chest at a rate of 100 compressions per minute, with a compression depth of 1½ to 2 inches (4 -5 cm). Allow the chest to completely recoil after each compression, and allow approximately equal compression and relaxation times.
3. Minimize interruptions to chest compressions.
4. Further studies are needed to define the best method for coordinating ventilations and chest compressions and to identify the best compression-ventilation ratio in terms of survival and neurological outcome. (Compression-ventilation rate was increased from 15:2 to 30:2.)"

Proper Technique

"Complete chest recoil allows venous return to the heart, is necessary for effective CPR, and should be emphasized in training (Class IIb)."

"Compression and chest recoil/relaxation times should be approximately equal (Class IIb)."

"In studies of chest compression in out-of-hospital and in-hospital settings, 40% of chest compressions were of insufficient depth."

"Two human observational studies showed that interruptions of chest compressions were common. In these studies of healthcare provider CPR, no chest compressions were provided in 24% to 49% of total arrest time. Interruption of compressions in animal models is associated with reduced coronary artery perfusion pressure..."

"Rescuer fatigue may lead to inadequate compression rates or depth. Significant fatigue and shallow compressions are seen after 1 minute of CPR."