

ART137

exercise physiology series
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CPR UPDATE: Hands Only

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IN APRIL 2008, THE AMERICAN HEART ASSOCIATION'S EMERGENCY CARDIOVASCULAR CARE COMMITTEE (ECC) published a "Science Advisory for the Public" regarding bystander response out of hospital who witness a sudden cardiac arrest. According to the AHA ECC evaluation of recent scientific studies, "bystanders who witness the sudden collapse of an adult should activate the emergency medical (EMS) services system {call 9-11} and provide high-quality chest compressions by pushing hard and fast in the middle of the victim's chest with minimal interruptions."

Despite the fact that CPR certification is required for all certified fitness instructors, many might hesitate to respond for fear of making an error or contracting a communicable disease while administering mouth-to-mouth breaths. Needless to say, many lay adults have the same fears or are untrained. Although the official CPR training still includes mouth-to-mouth ventilation in conjunction with chest compressions, the new AHA recommendation regarding fast and rapid chest compressions helps to allay those fears. The new guidelines are based on scientific research.

THE QUESTIONS ABOUT THE USE OF VENTILLATION WITH CHEST COMPRESSIONS BEGAN IN 1997 WHEN THE AHA commissioned a group of resuscitation scientists to evaluate the necessity and effectiveness of mouth-to-mouth breathing used with CPR by evaluating laboratory and human research. After a complete review, the committee strongly recommended further research despite their findings (according to documentation) that the addition of ventilation did not increase survival advantage. The scientific group recommended that more research was needed on the timing, rate, and depth of breaths as well as conditions when ventilation should be used, and concluded that further study should also be done on "real-world obstacles"—learning, remembering, and performing—CPR. At that time, they also stated that "provi{ding}. . . chest compression without mouth-to-mouth ventilation is far better than not attempting resuscitation at all."

AFTER ADDITIONAL REVIEW, THE 2005 AHA GUIDELINES recommended "delivery of high-quality chest compressions,. . . of adequate rate and depth with full chest recoil" limiting interruptions to ten seconds or less including the time breaths are administered. The compression-to-ventilation ratio was increased to 30 compressions and 2 breaths in one cycle.

THE CURRENT RECOMMENDATION OF THE AMERICAN HEART ASSOCIATION INCLUDES A “CALL TO ACTION” TO SAVE LIVES.

It states, “When an adult suddenly collapses, trained or untrained bystanders should—at a minimum—activate their community emergency medical response system (e.g., call 911) and provide high-quality chest compressions by pushing hard and fast in the center of the chest, minimizing interruptions.” AHA makes the following three recommendations:

- “If a bystander is not trained in CPR, then the bystander should provide hands-only CPR. The rescuer should continue hands-only CPR until an automated external defibrillator arrives and is ready for use or EMS providers take over care of the victim.”
- “If a bystander was previously trained in CPR and is confident in his or her ability to provide rescue breaths with minimal interruptions in chest compressions, then the bystander should provide either conventional CPR using a 30-2 compression-to-ventilation ratio or hands-only CPR. The rescuer should continue CPR until an automated external defibrillator arrives and is ready for use or EMS providers take over care of the victim.”
- If the bystander was previously trained in CPR but is not confident in his or her ability to provide conventional CPR including high-quality chest compressions (i.e. compressions of adequate rate and depth with minimal interruptions) with rescue breaths, then the bystander should continue hands-only CPR until an automated external defibrillator arrives and is ready for use or EMS providers take over care.”

ADDITIONAL RESEARCH is necessary because to date the scientific studies demonstrate varying results and controversy exists regarding the accuracy of animal studies. The main concern regarding the elimination of breaths is the eventual decrease in blood oxygen saturation and compromised delivery of oxygen during hands-only CPR. One study suggests that “after 4 minutes of continuous chest compressions without rescue breathing, the delivery of 2 rescue breaths every 100 compressions provides a survival advantage over chest compressions alone.” There have only been five key human studies. Three of those studies demonstrated no negative impact.

NOTE THAT CPR TRAINING REMAINS IMPORTANT! PROFESSIONAL CERTIFIED FITNESS INSTRUCTORS ARE REQUIRED TO MAINTAIN A CURRENT CPR CERTIFICATION. IN ADDITION, SOME CARDIAC ARREST VICTIMS particularly drowning, trauma, airway obstruction, acute respiratory disease, children, and apnea victims may benefit from mouth-to-mouth ventilation and the additional techniques taught in a CPR course. However, the simplification of CPR instructions (e.g. hands-only) may encourage more bystanders to take action and SAVE lives. For more information go to <http://handsonlycpr.eisenberginc.com> and the link science.

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ART137 QUIZ

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1 - In 2008, the American Heart Association published a “Science Advisory for the Public” regarding bystanders who witness a sudden cardiac arrest.

2 - According to the AHA EEC evaluation of recent scientific studies, bystanders who witness the sudden collapse of an adult should not call 9-1-1, but instead, they should provide fast and rapid chest compressions in the middle of the victim’s chest.

3 - Many people hesitate to use CPR for fear of making an error or contracting a communicable disease while administering mouth-to-mouth breaths.

4 - The new CPR guidelines are based on the recommendations of hundreds of fitness instructors.

5 - The AHA commissioned a group of resuscitation scientists to evaluate the necessity and effectiveness of mouth-to-mouth breathing used with CPR by evaluating laboratory and human research.

6 - After a complete review, the committee strongly recommended further research despite their findings (according to documentation) that the addition of ventilation did not increase survival advantage.

7 - The scientific group recommended that more research was needed.

8 - Chest compression without mouth-to-mouth ventilation is far better than not attempting resuscitation at all.

9 - The current compression-to-ventilation ratio is 10 compressions and 1 breath in one cycle.

10 - The main concern regarding the elimination of breaths is the eventual decrease in blood oxygen saturation and compromised delivery of oxygen during hands-only CPR.