DELIVERY OF CARDIOPULMONARY RESUSCITATION IN THE MICRO-GRAVITY ENVIRONMENT. M. R. Barratt* and R. D. Biliota*. KRUG Life Sciences and Medical Operations, NASA Johnson Space Center, Houston, TX.

INTRODUCTION. The microgravity environment presents several challenges for delivering effective cardiopulmonary resuscitation (CPR). Chest compressions must be driven by muscular force rather than by the weight of the rescuer's torso. Airway stabilization is influenced by the neutral body postural that rescuers will consist of crewmembers of varying sizes and degrees of physical deconditioning from space-flight. Several ACLS CPR designed to accommodate these factors were tested in the one g environment, in parabolic flight, and on a recent shuttle flight. METHODS. Utilizing study participants of varying sizes, different techniques of CPR delivery were evaluated including a recording CPR monitor to assess adequacy of compressive force and frequency. Under conditions of parabolic flight, methods tested included conventional positioning of rescuer and victim, free-floating aircraft. The hardware was built using a phased approach to provide the most advanced state of the art therapeutic and diagnostic equipment. Results. The delivery of ACLS in microgravity had a lower fidelity of the scenario and to evaluate the prototype device (CCAD). Multiple restraint systems and ventilation methods were also assessed. Results. The delivery of effective CPR was dependent on technique, adequate restraint of the rescuer and patient, and resuscitation size and preference. Free-floating CPR was adequate but rapidly fatiguing. The CCAD was able to provide adequate compressive force, but positioning was problematic. CONCLUSIONS. Delivery of effective CPR in microgravity will be dependent on adequate resuscitation, patient restraint, and resuscitation size and preference. Free-floating CPR may be employed as a stop-gap method until patient restraint is available. Development of an adequate CCAD would be desirable to compensate for the effects of deconditioning.