Objective: The purpose of this study was to determine whether coronary artery bypass grafting without cardiopulmonary bypass (off-pump CABG) decreases risk-adjusted operative death and major complications after coronary artery bypass grafting in selected patients.

Study Design: Using The Society of Thoracic Surgeons (STS) National Adult Cardiac Surgery Database, procedural outcomes were compared for conventional and off-pump CABG procedures from January 1, 1998, through December 31, 1999. Mortality and major complications were examined, both as unadjusted rates and after adjusting for known base line patient risk factors.

Results: A total of 126 experienced centers performed 118,140 total CABG procedures. The number of off-pump CABG cases was 11,717 cases (9.9% of total cases). The use of an off-pump procedure was associated with a decrease in risk-adjusted operative mortality from 2.9% with conventional CABG to 2.3% in the off-pump group (p < 0.001). The use of an off-pump procedure decreased the risk-adjusted major complication rate from 14.15% with conventional CABG to 10.62% in the off-pump group (p < 0.0001). Patients receiving off-pump procedures were less likely to die (adjusted odds ratio 0.81, 95% CI 0.70 to 0.91) and less likely to have major complications (adjusted odds ratio 0.77, 95% CI 0.72 to 0.82).

Conclusion: Off-pump CABG is associated with decreased mortality and morbidity after coronary artery bypass grafting. Off-pump CABG may prove superior to conventional CABG in appropriately selected patients.