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FOR IMMEDIATE RELEASE

Miami high school student develops innovative methods of suturing in coronary artery bypass graft (CABG) surgery and publishes article in scientific journal

Ethan Levy, a student at Dr. Michael M. Krop Senior High School in Miami, FL, recently published a scientific manuscript titled, "A Novel Method for Auto-Suturing in Laparoscopic Robotic-Assisted Coronary Artery Bypass Graft (CABG) Anastomosis" in the *Journal of Emerging Investigators*.

Levy's article, published on June 21, 2018, compares traditional suturing (which is done by hand) with a new method of robotic-assisted suturing that he developed. Levy invented a helical suture needle that can be operated by a robotic apparatus in laparoscopic surgery. In effect, this innovative needle can suture more times per segment in a smaller period of time and does not require the same level of precision that traditional hand suturing might require. In addition to creating this innovative needle, Levy went a step further by testing his invention against traditional hand suturing on an artificial tissue made of silicon tubing. Levy used a blood-mimicking solution and pumped it through artificial tissues that had been hand-sutured, or sutured with his helical needle four, five, or six times. Levy developed two pieces of apparatus that pumped the blood solution through the artificial tissue and tested for tensile strength and maximum pressure sustained by the various suturing methods. Levy found that his suturing technique using the helical needle had higher tensile strength and sustained higher pressure when compared to traditional hand-suturing.

CABG surgery is often used to treat coronary heart disease when there is a blockage of approximately 70% or greater. Because coronary heart disease account for 12.2% of all deaths worldwide, medical innovations like Levy's are crucial in best treating patients and to ensure that the intervention in use will allow for the best possible outcome.

The *Journal of Emerging Investigators (JEI)* is a non-profit scientific journal operated by graduate students at Harvard University. JEI is dedicated to mentoring young scientists in middle and high school and publishing their research through the online journal. Articles submitted to JEI pass through a rigorous editorial and scientific review process by several PhD-level scientists before they are accepted and published.

Link to Levy's article: <https://emerginginvestigators.org/articles/a-novel-method-for-auto-suturing-in-laparoscopic-robotic-assisted-coronary-artery-bypass-graft-cabg-anastomosis>

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