

MEDICAL BREAKTHROUGHS **RESEARCH SUMMARY**

TOPIC: A-FIB: LASER BALLOON SAVES THE DAY
REPORT: **MB #4863**

ATRIAL FIBRILLATION/ARRHYTHMIA: An arrhythmia is an abnormal heart rhythm in which the atria (the two small upper chambers of the heart) quivers instead of beating effectively. There are several types of arrhythmias, named by the chambers of the heart in which they occur and by the effect they have on the heart's rhythm. The two major types of heart arrhythmia are tachycardia (fast arrhythmia) and bradycardia (slow arrhythmia). Three major types of tachycardia are atrial tachycardia, supraventricular tachycardia, and ventricular tachycardia. Atrial Fibrillation is one of the most common forms of cardiac arrhythmia, affecting 0.4% of the general population and 5% to 10% of persons over 65 years of age. Abnormalities in the heart's electrical impulses in patients with AF cause blood to be pumped improperly, resulting in pooling, or clotting. If a blood clot moves to an artery in the brain, AF can lead to stroke. AF is also associated with increased risk of congestive heart failure and cardiomyopathy (heart muscle disease).

(Source: <https://columbiasurgery.org/conditions-and-treatments/arrhythmiaatrial-fibrillation>)

ATRIAL FIBRILLATION/ARRHYTHMIA TREATMENTS: For tachycardias, treatments may include vagal maneuvers that include holding your breath and straining, dunking your face in ice water, or coughing, medications to control your heart rate or restore a normal heart rhythm, cardioversion which is a shock delivered to your heart through paddles or patches on your chest to restore a normal rhythm, and catheter ablation where electrodes on a catheter tip can use heat, extreme cold or radiofrequency energy to damage or ablate a small spot of heart tissue and create an electrical block along the pathway that is causing the arrhythmia. Treatment for heart arrhythmias also may involve use of implantable devices such as a pacemaker and an implantable cardioverter-defibrillator (ICD). In some cases, surgery may be a recommended treatment for heart arrhythmias including a maze procedure where the surgeon makes a series of surgical incisions in the heart tissue to create a pattern or maze of scar tissue and a coronary bypass surgery to improve the blood flow to your heart.

(Source: <https://www.mayoclinic.org/diseases-conditions/heart-arrhythmia/diagnosis-treatment/drc-20350674>)

HEARTLIGHT X3 LASER BALLOON ABLATION: The HeartLight X3 Endoscopic Ablation System is for the treatment of recurrent symptomatic paroxysmal atrial fibrillation (PAF). The system allows direct visualization of the lesions being created by laser light through a fluid filled balloon that helps stabilize the ablation system in the pulmonary veins. The HeartLight X3 System introduces a new level of speed, control, and predictability for physicians. Operators can complete procedures with minimal radiation exposure, in seven minutes on average. David Kenigsberg, MD., Clinical Cardiac Electrophysiologist at Florida Heart Rhythm Specialists *stated* "More recently, there has been the development of a laser balloon, which is fully compliant and can go into the vein to take the shape of the vein. So, whether you have a nine-millimeter right middle pulmonary vein that is extremely small or a 3.8-centimeter common left pulmonary vein that is extremely large, this balloon can fit and allows us to provide an energy source to the area that we are trying to ablate. It also allows us to adjust the laser beam to go deep into an area or pull out and be more antral which in my opinion is ideal because it gives a wide area circumferential ablation, which is what we are looking for to treat atrial fibrillation."

(Sources: <https://www.dicardiology.com/content/fda-clears-heartlight-x3-laser-ablation-system-treat-atrial-fibrillation>, Interview with David Kenigsberg)

FOR MORE INFORMATION ON THIS REPORT, PLEASE CONTACT:

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If this story or any other Ivanhoe story has impacted your life or prompted you or someone you know to seek or change treatments, please let us know by contacting Marjorie Bekaert Thomas at mthomas@ivanhoe.com