

Pacemakers: The Riddle Solved

Pacemakers are a remarkable invention, and are used in over 5 million people in the U.S. A pacemaker delivers electrical impulses to stimulate and maintain a normal heart rate if the heart is too slow, or if its electrical conduction is blocked. A wonderful, miraculous device.

Despite this advantage, 30% of patients do not obtain the expected improvement... and no one knew why.

The answer is that pacemakers elevate the heart rate – but they don't always reproduce a normal heartbeat.

This is not a problem if the atrium is slow to contract. The heart's natural electrical system is utilized to reach the ventricle when the pacemaker's electrical leads only stimulate the atrium. The impulses travel along the heart's natural conduction pathways to maintain the normal ventricular twisting pattern of contraction.

Conversely, if the pacemaker leads are placed directly *in ventricular muscle* to stimulate it, the natural electrical system is *not* utilized. Electrical impulses travel much more slowly as they now go from muscle cell to muscle cell — at one-tenth of the normal speed. The stimulated heart will squeeze, but impulses fail to reach the needed areas in time, so that there is loss of the natural twisting motion needed for efficient contraction.

It may even cause heart function to worsen and produce heart failure in patients with dilated hearts. In other patients, fatigue will not improve, and shortness of breath will not get better.

My focus turned toward learning how pacemakers could be used to maintain the heart's natural twisting motions. I used the heart model described by Paco as my guide, to place pacemaker electrodes through a location on top of the septum (the muscular curtain between ventricles) to reach the natural conducting system. The twisting motion was immediately reproduced to create normal heart performance!

This approach was applied to over 700 patients around the world ... and yielded similarly positive outcomes. Yet conventional cardiac approaches have not changed. Why such resistance? Manufacturers would need to produce new types of pacemakers, when they already have a willing marketplace for what they presently make. Cardiologists would need to learn new techniques, instead of those they have used “successfully” for many years. Acquiring proficiency in this new method is a little harder at first, but once learned, requires only 20 more minutes of added time.

Such changes are needed if more effective treatments are to evolve. The potential benefit is vast, since over 5 million U.S. patients have pacemakers, and over 1 million patients worldwide receive new or replacement pacemakers every year.

Summary of Chapter 26 from the book:

SOLVING THE MYSTERIES OF HEART DISEASE
Life-saving Answers Ignored by the Medical Establishment
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