

Tiny, focused shocks can help patients overcome heart arrhythmia

December 7 2023, by Elizabeth Fernandez



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Joe McKown is an avid amateur athlete who has competed in scores of triathlons over the years. Swimming, biking, running, he thrived on challenging feats of endurance.

Then his heart started to act up—mild fluttering at first, then, within a few months, the episodes became more frequent and intense. He felt weak, unsteady.

McKown, 58, a [chief financial officer](#) at an independent school in Napa,

learned he had atrial fibrillation (AFib), the most common type of heart condition. The upper chambers of his heart beat irregularly and extremely quickly, opening the door to more serious complications, including an increased risk of stroke, dementia and [heart failure](#).

In search of treatment, McKown learned about pulsed field ablation, an innovative cardiology therapy being tested at the UCSF Heart and Vascular Center and a handful of other leading institutions nationally. He enrolled in the clinical trial, becoming the first patient at UCSF Health to undergo the procedure.

Pulsed field ablation uses a series of tiny electrical pulses to destroy the tissue causing the arrhythmia. The procedure takes an hour or less, compared to three or four hours for conventional treatment. As a result, patients spend less time under anesthesia and can have a speedier recovery.

"The benefits are enormous," said his surgeon, Edward P. Gerstenfeld, MD, MS, FACC, chief of Cardiac Electrophysiology and Arrhythmia Services at UCSF Health. "Pulsed field ablation, which delivers high-voltage electricity over split seconds, is shorter, safer and easier to recover from. Patients are extremely happy with it."

Gerstenfeld sees pulsed field ablation as a significant evolution in cardiac care, where the current standard treatment is catheter ablation using thermal energy developed at UCSF in the 1980s. For catheter ablation therapy, surgeons thread a small catheter through a vein or artery in the leg to reach the heart. The catheter delivers radiofrequency waves that burn the tissue that causes arrhythmias. Patients can typically leave the hospital in about a day. However, areas around the heart risk being injured from burns to the tissue.

With pulsed field therapy, the risk of injury is much lower since burning

isn't involved.

"It gets rid of rare but serious complications," said Gerstenfeld, a primary author of a [paper](#) on pulsed field ablation published in August in the *New England Journal of Medicine*, which found the treatment to be as safe and effective for paroxysmal [atrial fibrillation](#) as [catheter ablation](#).

"With pulsed field, patients look and feel better," said Gerstenfeld. "They've had only an hour of sedation. They can get up and walk around. Because there's no heat involved, they recover faster."

Currently in widespread use in Europe, pulsed field [ablation](#) is expected to be approved by the U.S. Food and Drug Administration in 2024.

McKown, who was initially wary of a [medical intervention](#) when his AFib started, is now an advocate. Since the treatment, he has been free of heart issues.

"I'm an aging athlete," said McKown, who has twice qualified for U.S. Triathlon Age Group National Championships. "I still raise my [heart](#) rate to elevated levels with the training I do. This has been such a great thing for me. Atrial fibrillation is no longer a limiting factor, I don't have to take blood thinners or other medical interventions. I can honestly say that there is nothing I would have wished for from this procedure that I didn't get."

More information: Vivek Y. Reddy et al, Pulsed Field or Conventional Thermal Ablation for Paroxysmal Atrial Fibrillation, *New England Journal of Medicine* (2023). [DOI: 10.1056/NEJMoa2307291](https://doi.org/10.1056/NEJMoa2307291)

Provided by University of California, San Francisco

Citation: Tiny, focused shocks can help patients overcome heart arrhythmia (2023, December 7)
retrieved 29 April 2024 from

<https://medicalxpress.com/news/2023-12-tiny-focused-patients-heart-arrhythmia.html>

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