

# 20-year review suggests athletes with genetic heart disease may return safely to competitive sports

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Athletes with a genetic heart disease are often disqualified from participating in competitive sports because of the perceived risk of

sudden cardiac arrest. While the clinicians' intent may be understandable, is it necessarily the best approach?

Mayo Clinic researchers conducted a review of [athletes](#) who were treated at Mayo during a 20-year period, and their findings published in *Mayo Clinic Proceedings* suggest that after the patient's condition has been properly evaluated and treated, an athlete's safe return to play is feasible, even with an implantable cardioverter-defibrillator (ICD).

"Although the risk of a disease-triggered breakthrough cardiac event is not zero, the data in our study finds that athletes with ICDs may safely participate in higher-intensity sports with minimal risk of damage to the device during competition or other adverse events," says Michael Ackerman, M.D., Ph.D., a genetic cardiologist at Mayo Clinic and the article's senior author. "Before this can occur, however, the athlete must undergo a full clinical evaluation with a thorough understanding of potential risks and a treatment plan that's well-understood and adhered to."

Dr. Ackerman and colleagues conducted a review of 125 athletes with a genetic [heart](#) disease, most commonly either long QT syndrome or [hypertrophic cardiomyopathy](#), who previously received an ICD, treated at Mayo's Windland Smith Rice Genetic Heart Rhythm Clinic between July 2000 and July 2020. The study is the longest-spanning review of outcomes for athletes with ICDs who were allowed to return to competitive sports.

Overall, 42 incidents of an ICD terminating ventricular fibrillation—a potentially lethal heart rhythm—were reported by 23 athletes over a follow-up period of about 3½ years. Athletes with an ICD were more likely to experience a breakthrough cardiac event than those whose treatment program did not require one, which demonstrates the appropriate at-risk patients received the device. Most important, there

were no sports-associated deaths or reports of sports-related damage to an ICD.

Dr. Ackerman says that until recently, athletes with genetic heart disease, with or without an ICD, have been disqualified from most competitive sports.

"This approach has harmed substantially the lives of hundreds, if not thousands, of athletes throughout the world, emotionally and psychologically," Dr. Ackerman says. "Our program at Mayo Clinic has led with a shared decision-making approach over the past two decades, and we have supported return-to-play for over 700 athletes to date, including athletes with an ICD. We have moved the proverbial goal posts from just preventing a genetic heart disease-associated sudden death to enabling and expecting our patients, whether an athlete or not, to thrive despite their diagnosis."

**More information:** Kathryn E. Tobert et al, Outcomes of Athletes With Genetic Heart Diseases and Implantable Cardioverter-Defibrillators Who Chose to Return to Play, *Mayo Clinic Proceedings* (2022). [DOI: 10.1016/j.mayocp.2022.03.024](https://doi.org/10.1016/j.mayocp.2022.03.024)

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