

# Physicist's gadget lets you hear the sound of a perfect golf swing

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Physics Professor Bob Grober plans to produce 100 System-1 devices by mid-September and batches of 1,000 by January. He hopes to reduce the price to around \$400, and will try to appeal to professionals as well as hobbyists.

Golf is a game of intense concentration. Golfers receive advice on the precise stance, grip, wrist angle, shoulder angle, head angle, and other details to improve their swings. But a new golf gadget developed by a Yale physics professor takes a different approach to golf training. Rather than focusing on the mechanics, the device lets players literally "tune in" to the sound of their swings.

Professor Bob Grober's invention, called System-1, instantly converts the velocity of a golf swing into sound, allowing the player to hear their swing in progress. The device consists of two components. A long, thin electronics piece slides into the shaft of almost any club, which includes sensors and a microprocessor to measure the swing's velocity. The data is then wirelessly transmitted to a receiver that can be tucked into a golfer's pocket, which converts the data to sound and sends it to a headset.

A golf swing can be programmed to sound like one of about 120 instruments, such as piano, piccolo, viola, or synthesized rock organ. The faster the club moves, the higher the pitch and volume. Grober hopes that the device will help people better understand the tempo, timing, and rhythm of their swings in an intuitive way.

"Getting people to change mechanical things, which are habits, is a very difficult thing, it could take months or maybe years," Grober said in a video at [Courant.com](http://Courant.com). "But when you turn all of that into something that people can hear, people are very good at adjusting sound, people are very sensitive to sound. And you can get people to change habits, mechanical things that they do, on the timescale of 5, 10, 15 minutes. Once you let them hear what it sounds like and show them how easy it is to do, that changes things in a dramatic way."

Grober founded a company called Sonic Golf to market System-1. So far, he has sold seven of the devices at \$1,000 each. Among his customers is Vijay Singh, a Masters and two-time PGA Championship winner, who bought one in June and uses it daily. Other customers include PGA Champion Rich Beem, tour veteran Fred Funk and CBS Sports commentator Peter Kostas.

Grober plans to produce another 100 units by mid-September and batches of 1,000 by January. He also hopes to reduce the price to around

\$400, and will try to appeal to professionals as well as hobbyists. The device might also be useful for physical therapy applications.

He says that there are lots of golf gadgets on the market that promise to improve your game. However, most of them don't work. He also noted that other golf devices exist that use sound to improve technique, such as the popular David Leadbetter Swing Setter, but hopes that his invention will offer something new.

But he says developing the technology was the easy part. Developing a successful business is more challenging. He has contracts with local suppliers in Connecticut to produce the shaft insert and the electronics, and he's currently looking for a company to package the product.

As Yale's Frederick Phineas Rose Professor of Applied Physics, Grober studies excitons, biexcitons and electron-hole plasma in narrow quantum wells. He says that golf is just a hobby that got out of control. A former intercollegiate player at Vanderbilt, he now has a handicap between zero and two. Although he teaches an introductory course at Yale called "Physics of the Game of Golf," most of Grober's academic work is unrelated to the Sonic Golf technology.

More information: [www.sonicgolf.com](http://www.sonicgolf.com)

via: [www.courant.com](http://www.courant.com)

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