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## AdaptTap leveling the playing field for blind swimmers



*Irish Aquatics swimmer Ashley Nashleanas works with Fernando Carvalho on the ADAPTAP system designed for blind swimmers. (Photo provided by Annie Sawicki).*

BY DIANE KRIEGER SPIVAK//Special Correspondent

When Notre Dame Irish Aquatics coach Annie Sawicki found herself with 10 visually impaired swimmers in her masters swim program, she quickly found out what they already knew.

Swimming blind presents its own set of problems. Drifting to the sides of the lane and not knowing when you get to the wall are the most challenging.

Sawicki found that there was nothing on the market to guide blind swimmers in the pool, so 2 ½ years ago she started working on a device that would keep the swimmers on track, as well as enable them to know when to turn.

"At practice they were hitting their heads," Sawicki said. "Some of them were used to their home clubs where their parents would tap for them." A tapper stands at the end of the pool holding a pole with a tennis ball attached and taps a blind swimmer on the head or shoulder when he or she nears the wall.

After a series of electronic devices failed, Sawicki was referred to Prof. Paul Down, of the university's Industrial Design Department, who enlisted his graduate students to help solve the problem.

The result, which has a provisional patent and could be ready for production in a few months, is the AdaptTap, a navigation system for visually impaired swimmers.

Sawicki, who coaches masters Paralympic swimmers, says her swimmers helped in the design process, putting different versions to the test. Even the sighted industrial design students who work on the product

blindfolded themselves, jumped in the pool and tried it out.

One of Sawicki's swimmers and Notre Dame student Ashley Nashleanas, a record holder who swam at the 2004 Paralympic Games in Athens, is featured in a video clip demonstrating the AdaptTap on the Irish Masters website.

"It's a very simple tactile device that works on the principal of curb feelers," said Down, who says the device does for blind swimmers what a backstroke flag does for backstrokers. The lane gate system features floating touchpoints with sponge-type balls on the ends that extend out from the lane lines to guide the swimmer.

The design team is working with the National Federation of the Blind, and will present the AdaptTap at the federation's national convention this summer.

"Right now we're sourcing the most cost-effective way to get a system together that would be reliable," Down said. "We have concepts in mind for how it could be made commercially, but it requires injection molded parts.

Down says the design team is currently looking for funding and for companies to manufacture the device.

PhD candidate James Fetter, who narrowly missed the 2000 Parlaympics in Sydney as a high school senior, is one of Sawicki's elite masters swimmers.

"I think the device has a lot of potential, especially at the end of the lane it gives an indication where to turn, which definitely makes it easier than in previous years trying to get tappers at practice, which you really need at a competitive level," Fetter said. "The problem when you're going full speed you're thinking about hitting the wall. I think it's definitely a good training tool that will help me swim on my own whenever I feel like it."

Lori Miller, 32, a 1997 Notre Dame alum who bicycled in Sydney in 2000 connected with Irish Masters last year after she decided to do triathlons.

"I've swum with the device, I've tested it and I love it," said Miller, who's been blind since age 2. "Now that I know something like that exists, it's really hard to jump in the pool to do laps without it," she said. "It provides orientation throughout the whole lap so I'm not moving back and forth. I can instantly make adjustments to get back to the middle.

"It eliminates the guesswork," Miller said. "No more jammed hands and fingers, bumping your head, no more counting strokes and backing off at the end because you know you're getting close to the wall but you're not quite sure. The device takes care of all that. It just takes all the limitations off and I'm for being as independent as possible.

With the device I'm able to concentrate on swimming faster again."

Down believes the device has the potential to help even fully sighted swimmers with contacts or eyeglasses, those affected by chlorination, backstrokers or even any swimmer since the eyes go in and out of the water while swimming.

Sawicki hopes the device can help other college swimmers "so they don't have to start at ground zero like we did.

"Not every blind swimmer is going to be a Jessica Long or go to the Paralympics," Sawicki said. "We want to reach out to everyone in the country who is blind who are going to use swimming as fitness. If the product fits the bill and can help elite swimmers go faster for training purposes, that's fantastic."