



**PEDAL EVOLUTION**

Richard Byrne with his prototype pedal and a Speedplay Zero model.

BRAD KAMINSKI



# WHY NOT?

Speedplay founder **RICHARD BRYNE** has spent most of his life looking for problems to solve—any way he can.

BY CHRIS CASE

**I**F YOU'VE EVER HEARD Richard Bryne's name, you probably associate it with pedals. The founder of Speedplay—and still the only designer the company has ever had on staff—has spent most of the past 30 years obsessing over the ways riders attach their feet to their bikes. He has a historic collection of more than 300 pairs of pedals, which he says is the most complete collection in the world. There are all sorts of both strange and predictable iterations of the concept. But none of them look like Bryne's signature product—the revolutionary lollipop Speedplay X that, admit it, you probably hated the first time you saw.

The X was jarring because nearly everything we associated with existing clipless pedals—the springs and tensioning hardware—was housed in its cleat. That allowed the X to be two-sided, since the only thing that had to be attached to the bike was a small platform for the cleat to snap onto. But the X came out in 1991, when clipless pedals were still relatively new, and the only ones anyone had seen looked like ski bindings attached to bike cranks (which they essentially were). That a pedal could be so small seemed impossible. In fact, Bryne had to bring the X to market himself after 22 different companies turned down his offer to let them license the design.

But anyone who knows Bryne, 62, would understand exactly why his approach to the road

pedal was not a variation on existing designs but a complete, bottom-up rethinking of how the whole process should work. He is an indefatigable tinkerer who will spend years on a single problem, trying myriad approaches until he finds something that works. If the best solution is something outlandish, so be it. "I'm not happy until I'm happy," Bryne says. "And hopefully other people will be happy when I'm happy."

His is the approach of an engineer, rather than a product developer, and it explains why, seven years after announcing his Syzr mountain bike pedal, Bryne is only just now bringing that product to market, with a design that looks nothing like the prototypes he displayed at the 2010 Interbike tradeshow.

"It took five years of beating my head against the wall, trying to get this to work," Bryne says. "The Syzr was the most frustrating design challenge I've ever been involved in. It is a really, really tricky thing. Because of people's expectations of what it should do, it was the hardest thing to get to work—so much harder than anything else I've ever done."

That's saying a lot, because in addition to the X and Syzr, what Bryne has done includes piloting a human-powered vehicle to victory at the 1983 international speed competition, inventing the stationary trainer and a precursor to the aero bar, and creating a bike whose geometry,

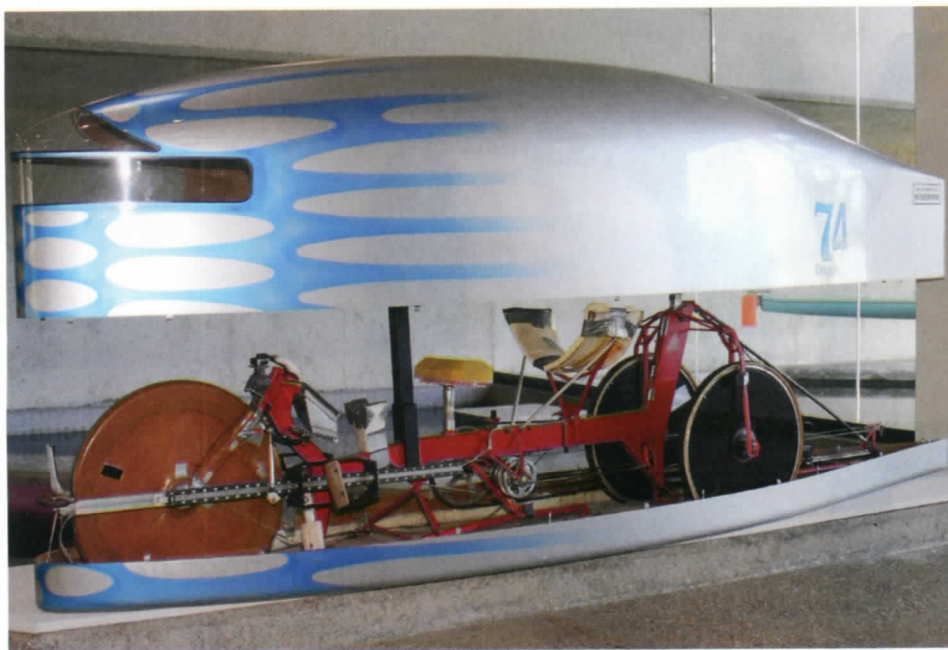
including the seat post angle, could be changed on the fly.

"His mind never stops, ever," says Bryne's wife, Sharon Worman, who also happens to be his boss, in her role as president of Speedplay. "He's very dedicated to finding solutions. If he thinks he can make something better or create something that's missing, then that desire carries him. Thriving on those challenges are a really big part of what makes him tick. It's an innate curiosity that is just in his nature."

One summer day in 1979, while riding laps at the San Diego Velodrome, Bryne was asked to audition to become the pilot of a human-powered vehicle. The bike, a three-wheeled arm-and-leg-powered prone recumbent housed inside a missile-shaped shell, had been designed and built by a man named Steve Ball, a San Diego mechanical engineer who had a fascination with speed and human power. Though Bryne won the right only to be the pilot, Ball's anything-goes approach to problem solving would end up changing the course of his life.

"Steve didn't have any background in cycling," Bryne says. "The cycling I found before I met him was a very defined world—there were rules for frame geometry and there were rules





### BUILT FOR SPEED

In 1983, Bryne piloted this human-powered vehicle to victory in the international speed competition.

### BREAKING TRADITION

Jim Elliott rode a Bryne-designed bike to a 24-hour world record of 502.3 miles.



from the last 100 years. And people didn't like to see those things change. It was extremely conservative. And he came in with the only goal being to go faster than anybody else. He didn't have any conservative traditional constraints. He was completely open to finding any meat on the bone, any area he could find for improvement."

Over the next seven years, Bryne and Ball were fixated on the human-powered vehicles, including a human-powered hovercraft. In Ball's garage, Bryne would watch over his mentor's shoulder as he worked and reworked the designs. He learned how to use a mill and lathe and how to weld. He was able to pilot the other vehicles built by fellow hobbyists and inspect how those were crafted. For someone who hadn't even finished junior college, it was as if he was suddenly double majoring in industrial design and philosophy—not just how to make stuff, but how to see the world and embrace challenges.

"I got to hang out with one guy," Bryne says. "Steve taught me everything I know about design and engineering. It was more of an apprenticeship than it was a traditional engineering environment. He taught me how to use a machine shop, how to weld, and those were key ingredients in fabricating."

During this time, while still racing on the track, Bryne began working with non-traditional bike geometries that would, he felt, allow the human body to produce more power. "I noticed whenever I was trying to put out maximum power, I ended up almost going off the

nose of the saddle," he says. "I was just guessing that my body was trying to get more power in that position."

This led him to create the Ouija, a bike whose geometry could be adjusted on the fly. (The multi-directional adjustability that is a hallmark of Speedplay pedals has been a Bryne approach for decades.) Among the Ouija's innovations was a floating seat tube whose angle could be moved in relation to the bottom bracket.

When a knee injury switched his focus from racing to coaching, Bryne began working with a talented young track athlete named Jim Elliott and put him on the Ouija. They discovered that by rotating the bottom bracket back in order to push the pelvis downward and open up the hip angle, Elliot could produce and sustain much more power. Based on those insights, Bryne built a bike with a radical 81.5-degree seat tube angle, which Elliot used to break the world 24-hour record. His 502-mile ride bettered the previous mark by 9.5 percent.

Elliot next set his sights on the Race Across America (RAAM). Since he had difficulty holding an aero position, Bryne—with help from friend and frame builder Bill Holland—built a place for Elliott to rest his upper body using two drop bars and forearm supports. In retrospect, Bryne says, they created the world's first aero bars. There aren't any photos to prove him wrong, though years later Scott USA benefited from a design they licensed from Boone Lennon, the head coach of the U.S. alpine ski team at that time, who received a patent for aero bars in 1988.

Still, there's no question that, whether or not someone else had had the same idea earlier, Bryne's aero bars, which he never commercialized, were a product of nothing more than his own drive and curiosity.

In 1985, Bryne looked to commercialize his 81.5-degree geometry concepts by partnering with Holland to launch Scepter. But the resulting bikes proved to be too bizarre to catch on. "Even the customers that bought the bikes said they were getting so much [negative] feedback from their friends that they wanted us to build them traditional frames," Bryne says.

After forays into race promotion and even founding a company that made modular fencing for crowd control, Bryne still felt the tug of the bike industry.

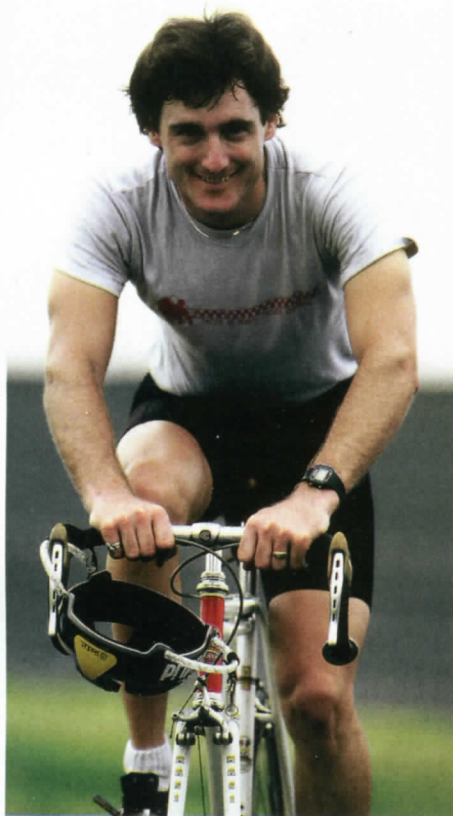
"I was trying to think of an opening in the cycling market for some technological exploitation that would be marketable," he says. "When clipless pedals started becoming popular, I started looking at the designs critically and seeing how I could improve upon them."

He turned to Ball for help. The two made a prototype pedal—milled from an aluminum billet—that showed promise but that was too big to be practical. So they put the blue prints on a Xerox machine, whose only reduction setting—77 percent—established the size of Speedplay's road pedals. "It ended up working perfectly for what I wanted for the second generation. And so it's still that size today," says Bryne.

The double-sided lollipop was born.

Next up was the cleat. As with most good





#### MR. INNOVATOR

Bryne warms up at the San Diego velodrome in 1983, atop the first frame design he worked on, in partnership with Masi.

#### MAGIC BIKE

Jim Elliott atop Bryne's Oujja bike, which allowed frame geometry, including the seat tube angle, to be adjusted while pedaling.

cycling innovations, inspiration struck while Bryne was out for a ride. He reasoned a layered cleat system would allow for the adjustability he sought, by creating a composition that allowed for the independent fore-aft and lateral fine-tuning that are now core to Speedplay.

As had been the case with the Scepter bike, the market proved resistant to such a radical departure from the norm. After those 22 different companies turned down the opportunity to license the X design in 1991, Worman suggested they do it themselves.

The couple sought advice from Larry Carlson, a friend who ran the aluminum division at Easton. That company had introduced aluminum baseball bats into the market only to see vehement opposition before consumers finally started buying them. Carlson told Bryne and Worman that patience would be key, as big innovations often took time to catch on.

"We just fastened our seatbelts knowing it was going to be a long lead up for these things," Bryne says. "I think he was right. It takes the market time to adapt."

Bryne has faced no greater challenge than the design of the Syzr, Speedplay's re-entry into the mountain bike realm. (He patented the Speedplay Frog all-terrain pedal in 1992.)

The problem he set out to solve with the Syzr, he says, was the way all other mountain-bike pedal systems rely on the shoes' rubber lugs to

support and stabilize what are otherwise very loose engagements between pedal and cleat. That means a loss of power transfer. Bryne wanted to deliver the direct engagement—and improved efficiency—of road pedals in a design that could work in the dirt and muck of off-road riding. And he also wanted it to offer the adjustability that Speedplay is known for.

"I was pretty much the crash-test dummy for the project," he says. "Though I was working on a bunch of other products at that time—the aero pedal, the walkable cleat, the Brass Knuckles—that was the one that was causing me the most grief. The Syzr was supposed to be the first product out of the assembly line, but it ended up being almost the last one."

His biggest hurdle was that in wet conditions, and especially under load, steel surfaces bond with each other. Existing designs combated this by incorporating play into the design or by using soft brass cleats, which don't bond with steel pedals but which also wear out more quickly.

In 2010, Bryne thought he was close enough to a solution—a special coating that prevented the surfaces from bonding—that he could announce his project to the world, which he did in a big way at that year's Interbike trade show. He admits now that that was a big mistake. The problem was that the coating—along with several subsequent coatings—proved not to be very durable. After a few rides in muddy conditions, it would wear off, and everything would start getting locked up again.

"I like to look at what other people have done

and evaluate where the opportunity is," he says. "And the opportunity with mountain bike pedals was a big one. It came down to a lucky connection to ceramics that I had in the past. I thought, 'What if I just try this?'"

The Syzr pedal that Bryne has finally brought to market looks a lot like the original Shimano 737 SPD, though with retention at the front, instead of at the rear. But the similarities end there. The revolutionary cleat consists of two concentric plates, one fixed to the shoe with the other rotating around it. This second plate engages with the pedal, while two V-shaped guides facilitate the pedal-cleat connection. And to solve the seizing problems that Bryne was so concerned about, he added four ceramic "rollers" to help alleviate metal-on-metal friction and allow for more consistent release.

Bryne admits there is a learning period to adapt to the feel of the pedal. It could be an instant hit, or it could flop. Or it could just be that, as was the case with the X, it will take seven years to catch on.

But if anything, Bryne has proven to be patient and thorough. He credits that, in part, to something Bill Holland told him when they decided they wanted to try to make the world's lightest bike.

"I asked, 'How are we going to do this?'" Bryne recalls. "He said, 'You start at one end, and you don't stop until you get to the other end.' And that's how you do these things. You uncover every stone. You don't overlook anything, because it all matters." ✓