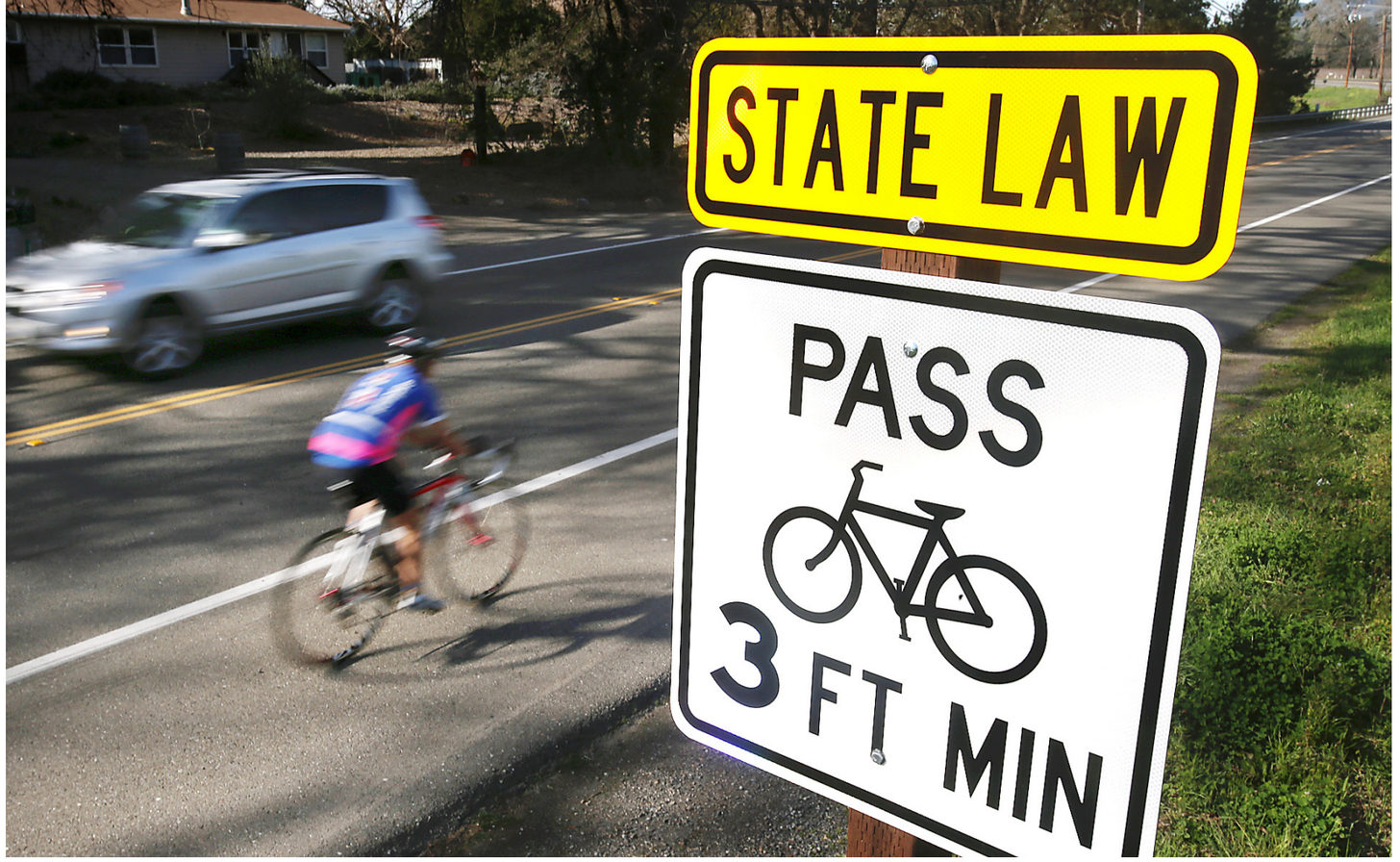
ROAD

IN A DISTRACTED WORLD, CAN CYCLISTS EVER FEEL SAFE?

BY HANNAH WEINBERGER



Triathlete Rachael Maney felt the car before it hit her. She was training alone for Ironman Arizona on Sullivan's Island, South Carolina, three years ago, when she approached the end of a bike path along her near-daily route. As she merged onto the side of a two-lane road, she noticed the driver of a Mercedes C-Class sedan pulling in 100 yards behind her. Traffic was approaching in the opposing lane, but Maney heard the Benz driver gun the engine in anticipation of passing.

"Once the truck in the opposing lane began to accelerate, I knew she was going to hit me," Maney remembers. "She couldn't depart the lane she was in to go around me—so she took me out with the side of her car." In the split second before the crash, Maney braced herself—"as opposed to relaxing my body the way I would if I were in a motor vehicle," she says—and then, a gaping blank. "I do not remember feeling the moment of impact."

Maney went to the hospital with injuries to her hip, shoulder, and along the left side of her body. Her bike was destroyed. She didn't feel the full extent of her injuries until a few days later. The pain persisted for almost a year, and it still flares up occasionally.

Her triathlon season crumbled. "Because of the crash and the extensive physical therapy I needed afterward, I was unable to run for 14 weeks before the race, which had a huge impact on my performance and the quality of my race experience," says Maney, who has been racing for six years.

And yet, she still considers herself lucky. A recreational cyclist on a beach cruiser witnessed the entire crash and called 911. A police report was filed, and Maney was able to recoup the costs of much of her equipment and medical care.

For the roughly 2 million triathletes and 100 million Americans who've ridden a bicycle within the past year, Maney's story is chilling but sadly relatable. "There are more of us on bikes now than ever and because there are more people in their vehicles ... than ever, it seems to be more of not an 'if' but a 'when' [a car-bike collision] will happen—if not to yourself, then definitely within one to two degrees of separation. That's sort of the experience that we're having," Maney says.

BELOW: CYCLIST ADVOCATE RACHAEL MANEY, A TRIATHLETE AND DIRECTOR OF BIKE LAW

I'VE HAD THE EXPERIENCE OF BEING HIT BY A CAR, BUT I STILL LOVE CYCLING.

WHY NOW?

A big concern for road cycling safety rests upon the changing demographics of the American triathlete community—namely, there are more newbies on the road. USA Triathlon had more than 500,000 members in 2012, but in July its membership was at 400,000. So to boost participation in the sport, organizations like the World Triathlon Corporation (which owns Ironman) and USAT have fostered programs to attract and convert the "tri-curious." While this is all happening, the number of cyclists on the roads has been increasing—and they've been dying at a higher rate. A March 2017 report from the U.S. Department of Transportation's National Highway Traffic Safety Administration found that cycling deaths rose 12.2 percent between 2014 and 2015—from 726 to 818. While official estimates for cyclist injuries based on police reports dropped to 45,000 in 2015 from 50,000 in 2014, not all riders report their injuries to police.

The issue of triathlete safety came to a very visible head in October 2017, when pros Tim Don and Matt Russell were hit while training for and during the 2017 Ironman World Championship, respectively (see "Kona Carnage" sidebar, right). The tri community was overwhelmed with a sobering realization: Crashes don't just happen to new triathletes when they're training alone on a country road. The worst can happen to the most experienced riders, even in the mecca of triathlon.

RISK REDUCTION

What does it mean to ride safely? In ever-changing real-world conditions, that can be a tricky question. Even in the official USAT rulebook (which also reminds triathletes that their safety is fully in their hands), the operational definition of "endangerment" is left up to the referee.

To help with some clarity, Ironman launched its CycleSmart initiative in 2017. CycleSmart is a program that identifies and defines the most important safety practices that new triathletes should adopt, and then aims to spread that message to as many people as possible through rider info packets, web videos, and even on bib-number stickers.

CycleSmart is modeled after Ironman's SwimSmart program—which has aimed to increase open-water safety with different start mechanisms, education, and more strict course guidelines. For Keats McGonigal, a senior regional director for Ironman who spearheaded the program, the initiative is personal: He's a seven-time Kona finisher and a crash survivor.

"I've had the experience of being hit by a car, but I still love cycling," he says. "Just because I've had that experience doesn't mean that I'm going to stop riding my bike. It just means I'm going to be more aware of what's going on around me when I do—and encourage others to do the same."

USAT launched a similar national safety awareness campaign called "Check Yourself" in 2016, featuring NASCAR champion and avid triathlete Jimmie Johnson as its

KONA CARNAGE

The 2017 Kona Ironman World Championship was a tough event for everyone, but it was unexpectedly life-altering for two pros and their families.

Two days ahead of the start, Tim Don—holder of a new Ironman record and a favorite to win on the Big Island—was doing a bike workout on Queen K Highway when a truck driver struck him. According to witnesses, the driver braked hard but couldn't stop in time. The crash rendered Don unconscious for at least 30 minutes and broke his C2 vertebrae. He miraculously avoided paralysis but wore a painful halo brace screwed directly into his skull for three months to stabilize his neck while he recovered. Don was able to remove the brace in January 2018, and pursued rehab in earnest. He returned to racing and in June won Ironman Costa Rica 70.3 in 3:49.

American Matt Russell was 76 miles into the race, riding back toward Kona, when the driver of a van pushed through a traffic stop and crossed directly in front of him. Russell tried to brake but couldn't avoid colliding with the vehicle and went through its back window. He suffered a concussion and lacerations to his neck, including a severed jugular. He returned to racing at the 2018 Ironman Texas 70.3 this past April, coming in seventh with 3:49:33.

GOING FROM RIDING A BIKE TO ACCEPTING THE ROLE OF BEING A VICTIM CAN BE VERY DIFFICULT.

spokesman. Check Yourself published three PSA videos speaking to running, cycling, and swimming, with the PSA on cycling dealing with how to share the road with cars.

Aside from a basic 10-point safety checklist that can be found on USAT's website, the guide also offers tips that may not seem so obvious, like using front and rear running lights. Decades of research have shown that drivers' late detection of cyclists is a leading cause of car-bike crashes, and that using lights improves your likelihood of being seen—even during the day. There's also new technology, like MIPS-equipped helmets that claim increased concussion protection for when you do end up on the ground, and safety cameras that record high-definition footage constantly, providing a record in case of an accident (see "Technology to Save Lives" sidebar, opposite page, for more). When it comes to actually riding, CycleSmart focuses on four things: staying alert; communicating clearly with other road users; obeying traffic laws; and keeping safety in mind, including making good decisions when passing, riding single file and along the road shoulder where possible, and keeping your brake shifters accessible. Some of the recommendations are contentious within the bike community—like riding as far to the right as possible rather than taking the lane—but ultimately lend themselves to safer rides.

McGonigal is just as concerned about veteran riders as he is about newbies, because experience can breed complacency. "Any time we get comfortable in doing something, we let our guard down a little bit," he says. "Even if you've ridden a route hundreds of times, you still have to be aware on that particular day, in that moment, to what the conditions are ... because unfortunately [a crash] can happen to anybody at any time."

With some of the equipment that's unique to our sport, sometimes triathletes need to take special care. Tri bikes affect riding in two key ways that present different safety concerns: First, aero positioning places body weight farther forward, changing a rider's center of gravity and making the bike's handling more sensitive. Aero also puts a rider's hands farther away from the brakes. "When your body position is like that ... your reaction time changes pretty substantially," McGonigal says. A road bike keeps the rider more upright, compared to being in an aero position, which makes it easier to stare downward and straight ahead, rather than seeing the whole picture.

Juggling three sports can also make it hard for triathletes to ride with other people—which presents another layer of safety concern. For starters, group riders can be more visible to drivers than a solo cyclist. And if a crash does happen during a group ride, a buddy can call for help. Group outings also help newbies learn to safely pass other riders and give them safe distance—all part of road sharing that affects how cars will pass you ... or hit you.

WHEN THE WORST HAPPENS

Jeffrey Bradley is an emergency room physician at Foothills Medical Centre and Peter Lougheed Hospital, both located in Calgary, Canada. He's also a competitive triathlete who has served as a volunteer medic at the Kona Ironman World Championship. This year he qualified to race the event. From a medical standpoint, he says there is a crash protocol that victims should follow if they're not incapacitated. "If you're in the middle of the road, you need to get to the shoulder so you don't get struck by another vehicle," he says. Once you're out of further harm's way, you should evaluate your mental and physical states while staying as immobile as possible to avoid worsening potential spinal injuries. "You don't want to convert a stable spinal fracture into something where you have paralysis or permanent neurological deficits," he says.

Bradley, who has sustained concussions from bike crashes, says it's important to figure out whether you're mentally capable of making decisions for yourself. "I'd start with your head. Do you know where you are, do you remember what day it is? Do you remember earlier in the ride? If you have a friend there, that's even better because they can talk to you and make sure you're making sense," he says. From there, check for any pain, tenderness, or numbness in your spine and neck. Next, focus on your core—do you feel pain in your stomach? Are you breathing okay? Check your extremities—are you able to stand up? Is there any pain in your arms or legs? Can you move your arms over your head?

"If you can do any of those things, I think you're pretty safe to get up, gather yourself, and kind of assess if you have other major injuries," says Bradley, who cautions that adrenaline can mask serious trauma. Ultimately, it's safest to call for help, stay still, and wait for first responders to arrive. "A lot of us are Type-A personalities, where if we just have scrapes or are sore [we] might just continue riding. But that's probably not the safest thing to do," Bradley says, adding that some injuries can take days to fully present themselves.

If you've self-cleared yourself medically, it's time to check over your equipment and cover yourself legally and financially, just like you would do following a non-injury auto accident. "Call the police," says Maney, a cyclist advocate and director of Bike Law—a collective of lawyers who represent cyclists. She adds that while waiting for officers, you should collect photo evidence of the car, bike, license plate, and driver. Have your ID ready (always carry identification on rides), get the name and insurance information of the driver, collect any witness contact information, and ask the driver to remain on scene. When officers arrive, make sure to file a police report.

More than anything else, make sure to accept help—whether that be from paramedics, fire officials, or police. "Going from riding a bike—which is something that you absolutely love, makes you feel empowered, and gives you a sense of freedom and joy—to accepting the role of being a victim can be very difficult," Maney acknowledges, but insurers and lawyers can't help you establish claims without a paper trail.

As for a return to riding, it's important to take things slowly as you regain your fitness, Bradley says. Getting back to training too soon can increase your odds of reinjury and prolonged pain, especially if you have soft tissue or musculoskeletal issues. "For 99 percent of us, this is a hobby: Don't rush it," he says. "Go slowly and work with your physician or physical therapist to make a safe return-to-sport plan. Listen to your body; if it's still sore, then you probably aren't ready to get back into hard training."

LETTER OF THE LAW

In a 2017 study of 100 cyclists' riding data, Tampa's Center for Urban Transportation Research found that while drivers and cyclists obey traffic laws at similar rates, drivers were responsible in every three out of four near-miss situations. Even so, the study's authors aimed the majority of their habit-adjusting safety recommendations at cyclists, and that impulse is part of a trend: In the Center for Disease Control's official recommendations for minimizing bike deaths from car crashes, none of the recommendations are targeted at drivers. Ironically, a 2017 study in the *Journal of Transport and Land Use* found that when cyclists do break the law, it's almost always out of self-preservation.

A 2013 article in the journal *Public Health Reports* found that distracted drivers are increasingly responsible for road deaths among cyclists. While more than 40 states have bans on texting while driving, nearly half do not impart fines on distracted drivers. Only 30 states have enacted Three-Foot Laws (laws that mandate drivers give cyclists three-or-more feet when passing), and the degree to which they penalize lawbreakers varies.

Despite everyone's best efforts to increase rider awareness, use safety technology, and be better educated on crash protocol, experts agree that creating a culture shift among drivers is the ultimate goal.

"Within our community, we can sit there and argue about the importance of hi-viz or riding two abreast, or taking the lane, or not coming to a complete stop at a stop sign—and while these are important conversations to have for sure, none of that matters if we're getting plowed over from behind at 70 miles per hour by someone who is checking his Zillow app notification," Maney says. "For a lot of the super close calls that we learn about, the driver is distracted. That's something that, as a cyclist, is completely out of our control. Until there's a stigma attached to distracted driving, the same way that Mothers Against Drunk Driving did for driving while intoxicated, [the statistics aren't] gonna change."

TECHNOLOGY TO SAVE LIVES

"Share the road" hasn't resonated with all drivers, so some innovative companies are pursuing ways to make cyclists as safe as possible.

Trek Bicycles, through its Bontrager brand, has subsidized studies through Clemson University that are investigating the impact of biomechanical motion on driver recognition—or the idea that humans are more likely to respond cautiously to movement that looks "human." The researchers have been studying the effect of lights on riders' ankles that track human pedaling motion, compared to static bike-mounted lights.

App and gear makers have introduced products that help cyclists stay connected to emergency contacts in the event of a crash. Social fitness app Strava now allows Premium users to store an emergency contact's number and elect to notify that person at the start of every workout. Garmin—whose bike computers and fitness watches are popular among triathletes—has been adding crash sensors to its tracking products. Safety sensors like **ICEdot** attach to helmets and can send alerts after identifying crashes.

Some technologies are built to keep both cyclists and drivers more alert to each other. **Garmin's Varia** ecosystem of car-sensing bike lights automatically adjust their flash patterns as cars approach cyclists from behind, while cockpit displays let cyclists know that a car is coming. Bike lights from **beryl** (formerly Blaze) emit a fine green line a few feet to the left of a cyclist like a makeshift bike lane. Manufacturer **Lumos** has been selling connected helmets with integrated rear lights that double as turn signals operated via wireless remotes.

"Heads Up Display" glasses, from companies like **Solos** and **Everysight**, connect with fitness trackers and bike computers, and superimpose collected data onto glasses lenses to keep your eyes always on the road.

ICEdot Crash Sensor - $100; Site.icedot.org

Garmin's Varia line - $70 and up; Garmin.com

beryl Laserlight - $165; Beryl.cc

Lumos Helmet - $180; Lumoshelmet.com

Solos Smart Glasses - $500; Solos-wearables.com

Everysight Raptor Glasses - $500; Everysight.com