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Recent Triathlon Deaths Have Experts Searching for Answers

Sonny Tumbelaka/Agence France-Presse — Getty Images Participants of the Indonesian Triathlon in June.

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WHEN 60-year-old Donald Morehouse and 52-year-old John Hobgood Jr. died in different triathlon events over the weekend, they became at least the seventh and eighth triathletes to die during competition this year. Those deaths came just one week after Esteban Neira, 32, died during the New York City Triathlon.

While this does not imply an epidemic — triathlon deaths remain rare — the deaths do share a puzzling resemblance: Like all of the triathlon deaths recorded by USA Triathlon at its sanctioned events in the last two years, they happened during the swim portion of the event, which also includes biking and running.

Absent extreme circumstances like a searing heat wave, it is always striking when an athlete dies during an endurance competition, especially a young or well-conditioned

athlete presumed to be at the peak of fitness. When Ryan Shay, a 28-year-old marathon champion, collapsed and died during the Olympic marathon trials last fall, even his closest friends and family were shocked. (Tests later determined his cause of death as an irregular heartbeat that stemmed from an enlarged and scarred heart.)

But what makes the triathlon deaths more mysterious is that they all occurred during the first part of the race. Deaths during marathons tend to be more evenly distributed over the course of the 26.2 miles, with the largest grouping occurring in the last mile, said William Roberts, a professor of family medicine at the University of Minnesota Medical School and the medical director of the Twin Cities Marathon.

The deaths of Mr. Morehouse (at the Spudman Triathlon in Burley, Idaho, an event not sanctioned by USA Triathlon) and Mr. Hobgood (at the New Jersey State Triathlon) are under investigation, as is Mr. Neira's. Hundreds of thousands of people have taken part in triathlons over the last four years, and with just 23 deaths recorded by USA Triathlon since 2004 (not including last weekend's deaths), the timing could be a statistical anomaly. But this much is clear: 18 of those 23 deaths occurred during the swim portion.

"There have been some striking similarities among recent fatalities," said Kathy Matejka, the director of event services at USA Triathlon, which does not track the total number of triathlon participants. In addition to the fact that they occurred during the swim portion, she said, at least seven of those who died this year were men who had "some measure of experience with the sport."

Despite these similarities, a precise cause of death remains elusive in many cases. News media reports suggest that at least three of this year's deaths were linked to heart problems, but it is unclear whether these problems were primed to happen imminently, or may not have happened until later, without the race as a trigger.

No one knows for sure why deaths are more common during the swim portion of triathlons, but researchers have some intriguing theories. Public accounts of this year's fatalities indicate that the athletes seemed outwardly healthy, and autopsies turned up no obvious cause of death, such as blocked arteries.

The combination of apparent good health and a negative autopsy suggests a fatality caused by abnormal heart rhythms, said Pamela Douglas, a Duke University cardiologist who has studied triathletes.

Evidence suggests that swimming may trigger a certain type of cardiac arrhythmia caused by a genetic condition called long QT syndrome, said Michael Ackerman, a cardiologist and the director of the Windland Smith Rice Sudden Death Genomics Laboratory at the Mayo Clinic. About 1 in 2,000 people are born with a heart condition that causes a glitch in the heart's electrical system, and the most common of these is called long QT syndrome, after the tell-tale interval on an electrocardiogram.

The long QT heart recharges itself sluggishly between beats, and that delay sets up the potential for a skipped beat, Dr. Ackerman said. When the problem strikes, the heart's electrical system can go haywire, degenerating into a potentially fatal arrhythmia.

Dr. Ackerman's research team has identified several genetic forms of long QT syndrome, and one of these seems especially bothered by swimming, he said. He's still not sure why, but sees one clue in a Japanese study several years ago that found that irregular heartbeats occur more commonly during swimming than during the same level of aerobic activity on land.

"It's not that swimming is horrendously dangerous and running is not," said Dr. Ackerman. "It's really a perfect storm that needs to happen."

"It requires a second hit," he said, "something to irritate it, and we know that swimming is one of those triggers, but it's not going to be the absolute trigger." A well-trained expert could detect most cases of long QT syndrome on an echocardiogram, he said.

Regardless of whether a race starts with a swim or a run, Dr. Douglas said, the adrenaline rush at the start could aggravate conditions like long QT syndrome, since adrenaline and its related hormones can make the heart more prone to arrhythmias. Physical exertion won't create a heart problem where none existed previously, but it can create problems for people with underlying cardiac disease. "When you exercise, your heart has to pump more blood," said Dr. Douglas. Someone with blockages in the arteries, she said, "would not be able to do that and it could trigger a heart attack."

Any medical problem in the water is more likely to turn fatal than one that arises during a bike ride or a run. "Water is not a forgiving environment," Dr. Douglas said. "It's really hard when you're swimming to sit down and say 'I'm going to take a breather.' "

Sudden fainting remains the classic warning sign of an underlying arrhythmia problem. "If you faint while running a race and your heart snaps back into sync 10 or 30 seconds later," Dr. Ackerman said, "you wake up. If it happens in the water, even if your heart regains rhythm 30 seconds later, now you're under water."

Triathlons are organized with swimming as the first event, Dr. Douglas said, because athletes are freshest at that point and would be less likely to need a rest.

Many triathletes point to the swim as a triathlon's most stressful segment. Most swims take place in open, often cold, water with hundreds or even thousands of other swimmers vying for position. "Nothing can prepare a newbie for the start," said Russ Evenhuis, a triathlete in Olympia, Wash. "It can be like jumping into a washing machine. You will get swum over, kicked, hit and banged into."

A triathlon's open-water swim hardly resembles the pools where most triathletes train, said Neil Cook, a New York City based triathlete and coach. "There is no wall 25 yards away, you can't see the bottom and the 50 to 150 people around you are more than you've probably swam with in total during your training," he said. "Oh, and you are wearing this wetsuit that's tighter than a girdle and you can't breathe." Raise your heart rate and

blood pressure under these conditions, he said, and “any weakness you have will become apparent.”

Fabian Quesada, 42, of Brooklyn prepared for the New York City Triathlon by taking part in an open-water training session with the Leukemia and Lymphoma Society’s Team in Training program. “They have trained coaches who tell you what to expect,” he said.

Still, Mr. Quesada had a bout of anxiety his first time swimming in open water. “Even though the wetsuit keeps you buoyant, it’s very restrictive and you panic because it’s tight,” he said. “You’re out in the open water where you can’t touch the ground. It can be an overwhelming experience.”

Triathlons normally hold meetings to brief participants on safety procedures, some of which are standard practice. For instance, “If you’re in the water and you have a problem, you’re supposed to stop and raise your hand,” said Doug Hiller, the chief medical officer for the International Triathlon Union, the sport’s worldwide governing body.

Ms. Matejka of USA Triathlon said that her organization is committed to safety and will ask its experts to look for lessons in this year’s deaths, but as of yet, the group has no major changes planned.

“Speaking as a 20-plus-year triathlete, I wouldn’t change a thing,” said Andrew Hunt, the medical director for USA Triathlon.

“Do I think open-water swimming is inherently dangerous? No I don’t,” he said. Regarding the number of swim deaths, he said last week: “You can’t just look at the numerator, you have to look at the denominator — my guess is that that number is probably in the six figures. Six out of a hundred thousand isn’t that many.” There’s simply no way to regulate away risk, said Dr. Hunt, and some triathletes say that’s part of the sport’s appeal. “We want to push the limit of our comfort zone and experience life,” said Joe Bator, 37, of Boston, who has competed in triathlons for three years. “I don’t know how it would be possible to do that without taking risks.”

“Sure we want to minimize those risks,” he said. “But when it is time to race and put on that number, we need to be willing to push just a little bit more and get just a little bit more uncomfortable. If we don’t, we will never know what we are capable of achieving.”

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To the Editor:

Re “Deaths Draw Attention to Triathlon Swim,” by Christie Aschwanden (Thursday Styles, July 31):

A potential factor not mentioned in the article is swimming-induced pulmonary edema (SIPE). In a SIPE attack, fluids from the blood leak into the lung’s airspaces during intense swimming, causing extreme shortness of breath and a blood-tinged cough.

While no fatalities have been documented in cases of SIPE, a few recent anecdotal reports have described extremely low blood oxygen levels requiring hospitalization.

SIPE is believed to occur from a combination of immersion in water (usually cold), which raises pressure in the blood vessels of the chest, and a sudden high demand for heart-pumping. Various additional factors may be required, including trauma to the pulmonary capillaries from intense training, overhydration causing increased blood volume, and possibly slowed emptying of the heart’s left ventricle because of high blood pressure or diabetes.

Triathlon swimmers who develop a distressing productive cough, or shortness of breath out of proportion to the exertion level, should signal for help and get out of the water immediately.

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