This type of firework disfigures people more than any other, study shows

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Mike Spencer lit the fuse and held the firework above his head.

It was a shell-and-mortar-style firework, and directions on the box usually say to put the barrel-like mortar on the ground pointing skyward, pop in the grenade-like shell, light the fuse - and run.

But Spencer, who was visiting his girlfriend in Bigfork, Mont., held it in his hands instead.

Then, "Bang!" The shell never left its tube.

"My hands felt warm," Spencer said. "I looked at them and just saw red."

That's the last thing he remembers of April 30, 2015.

According to friends, he took off running after the explosion and had to be tackled.

He regained consciousness the next day at Harborview Medical Center in Seattle, where he had been airlifted because of the severity of his injuries.

He lost one finger on his right hand and three on his left.

Spencer is one data point in a study by Harborview's Injury Prevention

and Research Center of 10 years of patients who came through its doors for firework injuries between 2005-2015. Researchers found that nearly 40 percent of injuries came from shell-and-mortar style [fireworks](link) like the one that hurt Spencer.

Since 1999, about 10,500 people have been treated for firework-related injuries every year in the U.S., according to the U.S. Consumer Product Safety Commission. But there's not much data on what types of fireworks cause the most [severe injuries](link), said Dr. Monica Vavilala, director of the Harborview Injury Prevention and Research Center. Most studies focus on the danger inherent in all fireworks, according to researchers.

"That doesn't give you the sense of how serious these injuries are," Vavilala said. "Here are the consequences, here's what's happening to real people."

Shell-and-mortar fireworks are legal in Washington state, but the injuries they cause are more similar to those inflicted by illegal fireworks, the study found. In fact, they were even more damaging than homemade fireworks.

"Just because something is legal doesn't mean it's safe," said Vavilala.

The typical person to suffer an injury in this study is a 20- to 30-year-old man. But lots of these injuries also happen to bystanders, according to Dr. Brinkley Sandvall, a plastic and reconstructive surgeon who worked on the study.

Seventy-eight percent of patients in the study had burns, 43 percent had fractures and 59 percent had soft-tissue injuries. Twenty-one percent of patients had eye injuries, and 70 percent of those lost some or all of their vision. Of the 294 patients examined in the study, 11 had an eye

removed, and 67 had a hand injury requiring at least one finger amputation.

"Fireworks don't usually just burn," Sandvall said. "The explosion rips through skin and muscle and bone."

That's what happened to Spencer. He's had 11 surgeries, including one to replace his left thumb with one of his toes. He has a sense of humor about it, calling it his "thoe."

But his injury affects Spencer two years later; he cried "really hard" when he saw himself for the first time on a local TV report in his hometown of Bowling Green, Ky.

"I still kind of wonder if I'm not in denial about it today," Spencer said. "(But) I choose to be happy and not spend my life looking in the rearview mirror."

As for this Fourth of July, Spencer has advice for revelers who want to use fireworks:

"Leave them to the professionals."

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