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link to Reader's Digest article [1]

brain [2] heart [3] skin [4]



Globally, lightning strikes about 44 times per second, often harmlessly between clouds and within clouds. But cloud to ground lightning can be deadly, causing more fatalities each year than hurricanes and tornadoes combined.

A 3 pronged attack

Lightning can attack its victim in three main ways: direct hit, side splash or ground strike. Being **directly hit** by lightning is actually less common than receiving a '**side splash**', when the lightning's current jumps through the air to the victim after directly striking an object such as a tree.

Lightning can attack its victim in three main ways.

When lightning hits the ground (a '**ground strike**'), it spreads out, seeking an escape. According to lightning expert, Dr Mary Ann Cooper, "If lightning contacts a fence or a water pipe or wire entering a house it can be transmitted for quite a distance and cause injury to persons near these paths. People, being bags of electrolytes, are better transmitters of electrical current than most ground is, and many are injured by ground current effect each year as the lightning energy surges up one leg that is closer to the strike and down the one further away."

3 ways in which lightning causes injury

There is enough **electric power** in a lightning bolt to boil water for 50,000 cups of coffee. Your body is a sophisticated electrical machine, and if a lightning current tears through your body, it can wreak havoc with the electrical signals in your heart and brain; tiny blood vessels can explode as current sears through, leaving you with a strange 'flower tattoo [5]'.

In addition to electric energy, lightning creates **high temperatures** and **blast waves** that injure the body.

3 people struck by lightning

Park ranger (or 'Spark Ranger,' as he became known) Roy Sullivan [6] has entered the Guinness World of Records as the man most struck by lightning. He survived 7 strikes, only to commit suicide at the age of 71.

In 1504, theologian Martin Luther was reportedly struck by lightning as he walked back to university during a July storm.

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The late Dr Oliver Sacks, an eminent neurologist, describes the mysterious case of Tony Cicoria, a 42 year old orthopaedic surgeon in New York. He was struck by lightning while telephoning his mother from a phone box.

3 body parts most affected by lightning

A Swiss study [7] confirmed that the most serious injuries involve the **nervous system, cardiovascular system** and **skin**.

Roy Sullivan's skin was burned on his chest and leg; his hair and eyebrows were also singed. Thankfully, his heart seemed to escape injury, but he lost consciousness once.

Tony Cicoria lost consciousness and suffered a cardiac arrest. Most interesting, however, were the effects on his brain in the days and months after the strike. He developed an insatiable desire to listen to and play piano music, completely out of keeping with anything from his past. Sacks called it 'musicophilia'; Cicoria felt that his near-death experience had perhaps let him 'tune into the music of heaven' (see him playing his 'lightning sonata' [8]).

Speaking of heaven, Martin Luther definitely thought that his being struck by lightning had some spiritual meaning: he is rumoured to have made his vow to become a monk as the lightning threw him to the ground.

3 ways to stay safe in lightning

In the Sound of Music the von Trapp children, afraid of the lightning, climb into bed with Fräulein Maria and sing a song to dream of their favourite things [9] and distract them from the storm. Seeking shelter indoors - or even inside a car (as we did on family holidays in my childhood) - can indeed reduce your risk of being hit.

Julie Andrews' other very famous film, Mary Poppins, is, however, not to be used as a lesson in lightning safety: Mary Poppins flies through the clouds carrying an umbrella. Increasing your height (by carrying an umbrella) increases the likelihood of being hit, and if the umbrella is metal, it can conduct lightning into your body.

It's also not wise to fly a kite (the closing scene of Mary Poppins) during a lightning storm. On June 10th, 1752, Benjamin Franklin did just this. The kite was struck by lightning and Franklin proved once and for all the electrical nature of lightning.



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