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Why do I sneeze when I walk outside on a sunny day?

### **1) What I already know and don't know about my topic?**

There is a minority in the world that has the same condition as me. I do not know how many people are affected by this condition, but usually when I ask someone if they have this problem they give me a funny look that says, "What is wrong with you?" There is nothing wrong with us, there is something wrong with the sun. Whenever we walk outside on a beautiful sunny summer day, we sneeze. This is a "problem" for some because they think it's a total inconvenience, but really sun sneezes are glorious. Unlike your run-of-mill sneezes, sun sneezes don't often come along with a load of snot. They are clean, pure and feel amazing. I know absolutely nothing about this except for the obvious; I sneeze when I walk outside into the sun.

The first thing that I must find in order to know more general information is what causes regular sneezes. Next, I need to discover if there is an actual scientific name for sun sneezes.

The other obvious thing I must find is what the cause of my condition is. I also must find out how much of the population this affects.

## **2) Why I want to answer my question?**

I really want to answer this question just out of extreme curiosity. It happens to me all the time and I have no idea why. I only know a few people who have sun sneezes and would like to know if I'm just a weird person or if there are a lot of people who are affected. Another reason I would like to know is because I would like to be able to tell people who think I'm crazy what is really happening. Also I absolutely love my sun sneezes, so if I know exactly what causes them then I can have the glorious feeling whenever I want.

## **3) Story of my search**

My search started with a very general area of information. I decided to first research why you have a regular sneeze to better understand the process of a sneeze. I tried the Panther Prowler on the Rod Library homepage, but found nothing useful. So naturally I turned to google as my next resource. I searched why you sneeze and found a wonderful children's health information site. The site was perfect because it put everything in terms so that a small child could understand why you sneeze, which in turn meant I could understand it. The first thing I learned from the site is that there is a scientific name for sneezing, sternutation. Next I found that sneezing is your body's way of getting an irritation out of your nose. The irritation

could be anything from dust in the air to pepper to a virus causing swelling in your nose.

Apparently when there is an irritation in your nose, a message is sent to a certain section of the brain the website calls "the sneeze center". The "sneeze center" sends a message to all the muscles in your body required to sneeze. Amazingly sneezing is not as simple as you would think. There are many muscles involved including chest muscles, vocal cords, diaphragm and eyelid muscles, you uncontrollably close your eyes every time you sneeze. The resulting coordination of your muscles is snot speeding out of your nose at up to 100 miles per hour!

My next source was a family friend who coincidentally has the same last name as me. Gail Reynolds is a nurse at the University of Iowa hospital and has been for over 20 years. I e-mailed her inquiring about sun sneezes. Basically, I was asking if there was a technical term or condition that had to do with walking into the sun and sneezing, as if by some mysterious force. I was shocked to find that there is a name for my sun sneezes; they are called photic nerve sneezes. I then went to a dictionary to find out the exact definition of photic. I found that it means: of or pertaining to light. Gail being the useful source that she is not only gave me the name, but also gave me a general outline of photic nerve sneeze. She said that it affects approximately 10% of the population and is generally hereditary. As it turns out, my dad is the reason I sneeze when I walk into the sun. The plethora of information did not end there, she went on to tell me that the sneeze occurs when you have been in darkness for five to eight minutes and then you enter a bright light which causes a rapid dilation of the pupils resulting in a sneeze.

I found additional information back at the kids health website. Apparently the scientific term for photic nerve sneeze is Autosomal Dominant Compelling Helio-Ophthalmic Outburst. Scientists and doctors shorten this term to ACHOO. This website also confirmed that ACHOO is hereditary. They differed in that they said one-third of the population is affected by ACHOO as opposed to the previously stated 10%. Looking into it more, I found 10% to be more commonly cited.

My next step involved a resource I'm not supposed to use. I went to Wikipedia. I was slightly ashamed, but I ended up with a credible source after my research had taken its course. I originally went to the site looking for information on pupil dilation. Looking at the information given I saw that the optical nerve is heavily involved in this process. This led to looking up the nerve involved in sneezing. The nerve that makes us sneeze is the trigeminal nerve. Searching these together with photic nerve sneeze on google got me my credible resource. I found a published journal article that had two theories on why a photic nerve sneeze happens. The first theory says that nerve impulses traveling up the optic nerve, due to a change in pupil dilation, could transfer over to the trigeminal nerve because of their close proximity and results in a sneeze. The second theory is that when you walk outside and squint, it squeezes the lacrimal sac, that collect your tears, this causes tears to roll down the nasolacrimal duct into the nose causing irritation in the nose resulting in a sneeze. The article previously states that photic nerve sneezes occur two to fifteen seconds after you are in the light. This means the first is most likely because the whole tear process would probably take longer.

After all of this I decided to conduct a small survey of my own to find out what the percentage of people I know have this condition. Of the 38 people who responded to my survey, sixteen said they have photic nerve sneezes. That's a whopping 42%. The survey concluded my investigation into sun sneezes.

#### **4) What I've Learned**

I have learned so much during this entire search. I didn't think there would be a clear answer or any scientific research done into the strange phenomenon that I thought my sun sneezes were. Also I thought that I was just crazy or weird because of the sneezes, but I found that many people have the same condition as me. In the end, I was extremely happy to have a general understanding of what causes photic nerve sneezes, as well as some interesting theories as to how the process takes place. I am pleased to say that the next time I get a funny look from somebody due to my photic nerve sneezes that I can go into great detail as to why I sneeze when I walk into the sun.

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