

## ACHOO syndrome: laboratory findings

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■ The author provides laboratory documentation of the ACHOO syndrome (photic sneeze reflex) and was able to calculate the latency of the reflex.

□ INDEX TERM: SNEEZING □ CLEVE CLIN J MED 1989; 56:743-744

**T**HE ACHOO syndrome (photic sneeze reflex) has been reviewed previously.<sup>1</sup> To my knowledge, no laboratory studies of this reflex have been described.

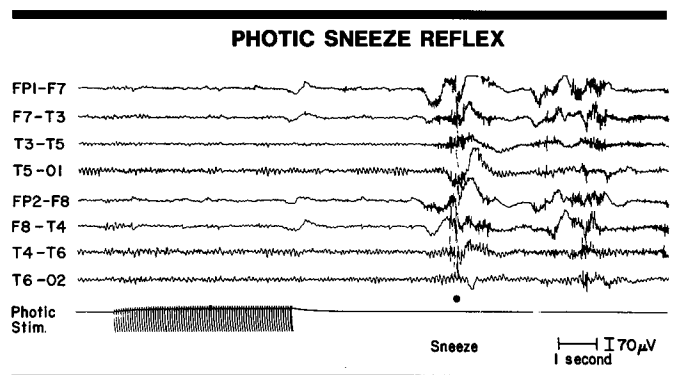
### CASE REPORT

A 55-year-old woman was referred for routine electroencephalography (EEG) because of a history of absence seizures and generalized tonic-clonic seizures since childhood. Historically, seizures were both spontaneous and occasionally triggered by sunlight. The patient had always been an "easy sneezer," but paid no attention to whether or not the reflex was triggered by light.

A six-hour EEG was obtained using a Grass model EEG machine. Electrodes were applied in the standard International 10/20 positions. EEGs were obtained while the patient was awake, asleep, and after she hyperventilated for three minutes. Photic stimulation was performed using a Grass PS 22 stimulator. The light was held 30 cm from the patient's eyes and delivered flashes with an intensity of 5.5 lumen-second/ft<sup>2</sup> and of 10  $\mu$ sec

duration. The patient's eyes were closed, and flash frequencies of 15, 20, 15, 12, 8, 4, and 1 Hz, in that order (usual sequence for our laboratory), were given for a minimum of five to six seconds for each flash frequency. Because the patient sneezed at a flash frequency of 15 Hz, the technologist repeated the stimulation at that frequency two more times.

Only at a flash frequency of 15 Hz were sneezes induced. This phenomenon was reproducible and occurred on three of the four occasions a 15-Hz flash



**FIGURE 1.** The flash frequency of 15 Hz is in the bottom channel. A pair of sneezes is recorded, judged by electromyographic artifact. The first sneeze occurred with a latency of 9.2 seconds. The interval between sneezes was 3.4 seconds.

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stimulus was used (*Figure 1*). The latency of the sneeze (judged by electromyographic artifact shown on the EEG) from the onset of the flash averaged 9.9 seconds (with a range of 8.6 to 12 seconds). On two occasions, only two sneezes occurred; on the third, four sneezes. The intersneeze interval was two to four seconds. Generalized bursts of 5–7-Hz waves with sharp components were also recorded with photic stimulation but were not associated with sneezing.

#### DISCUSSION

This case documents the occurrence of the photic sneeze reflex and allows the calculation of the latency of the reflex (average, 9.9 seconds). A reflex of this latency

undoubtedly has a polysynaptic pathway. The fact that sneezing was seen only with a flash frequency of 15 Hz is interesting but probably coincidental.

Most individuals with the photic sneeze reflex do not have epilepsy, and the occurrence of both phenomena in this patient is coincidental. Unfortunately, this example does not provide clues to the neural pathways involved in the photic sneeze reflex.

#### REFERENCE

1. Morris HH III. ACHOO syndrome: prevalence and inheritance. *Cleve Clin J Med* 1987; **54**:431–433.

