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What Gives You Goosebumps?

Have you ever had goosebumps—where your hair stands on end and your skin becomes bumpy like the skin of a plucked chicken? Have you ever wondered why we get them? Think like a scientist and let's find out.



When we become chilled, excited, or frightened, our bodies produce adrenaline, a hormone that makes our heart beat faster, prepares our lungs to take in more oxygen, and causes our pupils to dilate. And you know what else? Adrenaline causes tiny muscles beneath our skin to contract, tugging at the roots of the hairs that cover our bodies. This is when our hair stands on end and gives us “goosebumps.”

Scientists believe that our bodies react to fear and excitement as a means of survival. Many thousands of years ago, if a human heard a strange sound in the forest or was afraid of an animal attack, adrenaline would prepare their body for a fight-or-flight response.

Having bumps on your skin doesn't seem like a particularly useful survival adaptation for a human who feels cold or threatened. However, scientists believe

that more than one million years ago, when the human body was covered in a thicker coat of hair, having a “hair-raising experience” served two main purposes. First, hair that stood on end and settled back into place had the ability to trap a layer of air next to the skin, insulating against the cold. Second, hair that stood on end would give a human the appearance of being larger and more intimidating in case of an attack.

Because humans aren't covered in hair like they used to be, it was hard to know if these two hypotheses are true, which is why naturalist and biologist Charles Darwin observed animals in nature and designed experiments to answer some of his own questions about the usefulness of goosebumps as an evolutionary adaptation in animals. Whatever the reasoning, our bodies' physical reactions are intriguing clues to our evolutionary history.



“Hair-Raising” Questions

On the back of this paper, answer the following:

1. What causes goosebumps to form?
2. Explain two reasons scientists believe humans get goosebumps.
3. Write a sentence or two explaining the meaning of these key terms: fight-or-flight response, evolutionary adaptation, hypotheses.
4. Do a bit of research. Who was Charles Darwin? How did he observe the goosebumps phenomenon in animals in nature? What experiments did he design to test his hypotheses on goosebumps?