

Goose bumps, laughter and butterflies

September 14 2009, by Tom Vasich



Is laughter itself good medicine or is it the positive attitude of naturally happy people that enhances health? Research into the chicken-and-egg conundrum of giggling is ongoing. Image: Michelle S. Kim

The human body is as mysterious as it is magnificent. For every essential function like thought or a heartbeat, the body exhibits quirky behaviors that seem to defy explanation. Like goose bumps. Or hiccups. Or peals of laughter.

Dr. Kathryn Larsen, the Gerald B. Sinykin, M.D., Endowed Chair in Family Medicine, relies on her encyclopedic knowledge of the human body to treat patients and to teach UC Irvine medical students about disease and illness. Here, she talks about some of those quirks.

Q. What causes goose bumps?

A. Goose bumps (the medical term is *cutis anserina*) can develop involuntarily with exposure to cold or an emotion such as fear. Goose

bumps start with a reflex in the tiny muscles at the base of each hair that contract with a stimulus to pull the hairs into an erect position (called piloerection). Goose bumps, which have no known benefit in humans, are often most noticeable on the forearms. Piloerection can also be seen in some types of epilepsy and [brain tumors](#) and in withdrawal from heroin and other illicit drugs.

Q. Why is laughter considered the best medicine?

A. Research is ongoing regarding the potential health benefits of laughter. We do not know if the act of laughter itself is beneficial, or more the sense of humor and positive attitude behind it. When we laugh, we increase our [pulse rate](#) and blood pressure, and the effects may be similar to exercise. Researchers have estimated that laughing for 10 to 15 minutes burns 50 calories. Other studies suggest [laughter](#) improves blood flow, immune responses and blood sugar levels.

Q. What causes butterflies in the stomach?

A. This fluttery physical sensation related to nervousness or anxiety often occurs in the early stages of [romantic relationships](#). Some theorize that butterflies are caused by the release of adrenaline, which sends blood away from the stomach and causes it to slow functioning. This, in turn, may create the lack of appetite also seen early in romances. Others speculate that endorphins may affect chemical reactions that result in the butterfly sensations.

Q. Why does hair gray?

A. There are two types of pigment or melanin that cause color in hair: eumelanin (dark brown or black) and pheomelanin (reddish yellow). Genes generally control this amount of melanin, and gray hair simply has less of it. On average, 50 percent of Caucasians, for example, are gray by age 50. It is not known how each hair loses pigment. The melanocytes, cells which produce the melanin, may be present but not active or may decrease in number.

Q. What causes a hiccup?

A. Hiccups are uncontrolled contractions of the diaphragm. The complete answer about their cause is not known. Common triggers for hiccups that last less than 48 hours include overeating, drinking carbonated beverages or imbibing too much alcohol. Sudden temperature changes and emotional stress also may play a role. Hiccups lasting more than 48 hours usually are due to nerve damage or irritation of the vagus or phrenic nerves; to problems affecting the central nervous system, such as stroke, tumors, and multiple sclerosis; or to alcoholism and barbiturate use.

Q. Why do we sometimes see spots?

A. These small specks in our visual field are called floaters. They are very small clumps of cells inside the vitreous, which is the jelly-like fluid inside the eye. When we see floaters, we are actually seeing the shadows of floaters cast on the retina (which is at the back of the eye and is light-sensitive). Most floaters are benign. Numerous floaters or those accompanied by flashes of light may be an indication of more serious retina or eye problems, and a doctor should be contacted immediately.

Provided by University of California, Irvine

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