

The 'Pinocchio effect': If you don't tell the truth, your nose really could give you away

- Researchers find that when people lie their noses begin to warm up
- Using thermographic cameras they discover a range of correlations between mental states and body temperature
- Among other findings, they discover that dancing flamenco causes a drop in the temperature of the buttocks

By [Damien Gayle](#)

PUBLISHED: 11:50 GMT, 4 December 2012 | **UPDATED:** 11:50 GMT, 4 December 2012

The story of Pinocchio, the wooden boy whose nose grew when he told a lie, has long served as a warning to youngsters to tell the truth or risk being found out.

Well it appears the story had a nugget of truth to it, with a new study now saying that when people tell a lie they indeed suffer a similar effect.

Psychologists investigating how mental states affect body temperature say that when people lie their noses and the region around the inner corner of their eyes begin to warm up.



Disney's Pinocchio: The wooden boy's nose grew longer and longer if he ever told a lie. Now a new study has shown that lying really does have an effect on our noses - by making it warm up

The team from the University of Granada, Spain, say this 'Pinocchio effect' is just one of a range of changes in body temperature related to feelings they have discovered using a technique called thermography.

They also found that when we perform a considerable mental effort our face temperature drops and when we have an anxiety attack our face temperature raises.

Rarely before used in psychological research, thermography uses specially adapted cameras to detect infrared radiation, producing images of objects based on their heat signature.

Thermographic cameras were developed in the U.S. during the Second World War and these days are used in such diverse tasks as measuring energy loss in buildings, indicating respiratory diseases in cows or rabies in raccoons.

AMONG THE FINDINGS

- **Lying** - makes our noses and the region around our eyes warm up
- **Concentration** - makes our facial temperature drop
- **Anxiety** - makes our facial temperature go up
- **Dancing flamenco** - lowers temperature in our buttocks and increases it in our forearms
- **Sexual excitement** - increases temperature in our chests and genitals

University of Granada's Emilio Gómez Milán and Elvira Salazar López are among the first to applying thermography to psychological research.

They found that when we misrepresent our true feelings - when we lie, in other words - the temperature around our nose raises and a brain element called 'insula' is activated.

The insula is a component of the brain reward system, and it only activates when we experience real feelings (called 'qualias'). It is also involved in the detection and regulation of body temperature.

Therefore, there is a strong negative correlation between insula activity and temperature increase: the more active the insula (the greater the feeling) the lower the temperature change, and vice versa, the researchers state.

Researchers also determined the thermal footprint of aerobic exercise and different kinds of dance. When a person is dancing flamenco, for example, the temperature in their buttocks drops and increases in their forearms.

That is the thermal footprint of flamenco, and each dance modality has a specific thermal footprint, Professor Salazar explained.

The researchers have demonstrated that temperature asymmetries in both sides of the body and local temperature changes are associated with the physical, mental and emotional status of the subject.

Because of this, the thermogram is a somatic marker of subjective or mental states and allows us see what a person is feeling or thinking, Professor Salazar added.



Giving the game away: When we misrepresent our true feelings - when we lie, in other words - the temperature around our nose raises and a brain element called 'insula' is activated

Also, the researchers say, thermography is useful for evaluating emotions (since the face thermal pattern is different) and identifying emotional contagion.

For example, when a highly empathic person sees another person having an electric discharge in their forearm, they become infected by their suffering and temperature in their forearm increases.

In patients with certain neurological disease such as multiple sclerosis, the body does not properly regulates temperature, which can be detected by a thermogram.

Thermography can also be applied to determine body fat patterns, which is very useful in weight loss and training programs. It can also be applied to assess body temperature in celiac patients and in patients with anorexia.

Most interestingly, the researchers showed sexual excitement and desire can be identified in men and women using thermography, since they induce an increase in chest and genital temperature.

Their study demonstrates that – in physiological terms, at least – men and women get excited at the same time, even although women may say they are not excited or only slightly excited.

MOST READ NEWS

- [Previous](#)
- [1](#)
- [2](#)
- [3](#)
- [Next](#)



[Kiss of life from the monster who killed her: Moment...](#)



[Why did no one help him? Outrage as commuters stand back...](#)