

Smells Influence Dreams, Study Says

Rebecca Carroll
for [National Geographic News](#)

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What you smell may influence emotions in your dreams, according to a new study.

When researchers gave dreaming subjects whiffs of rose scent, the subjects reported rosier dreams. The scent of rotten eggs, on the other hand, provoked unpleasant dreams, the study found.

The different scents were not incorporated literally into a person's dreams, said study author Boris Stuck of the University Hospital Mannheim in Germany.

"There was hardly any kind of a dream dealing with smelling and tasting," he said.

Rather, the pleasant odor appeared to affect the subjects' emotional ratings of their dreams.

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Strong Emotional Impact

The sense of smell is known to be closely associated with the [brain's](#) limbic system, which governs emotion and behavior.

"If odor has a strong effect on your emotions when you're awake, it makes sense for it to have a strong effect on your emotions when you're asleep," said Stuck, who presented the research Sunday in Chicago at the annual meeting of the American Academy of Otolaryngology—Head and Neck Surgery. The findings have not been published.

Stuck and his colleagues studied the effects of rose and rotten-egg odors on 15 healthy women in their 20s. Young women have been shown to have the best sense of smell, they said.

Tubes were taped to the subjects' nostrils, linking them to olfactometers. The devices pumped constant streams of air into their noses so a gust of odor would not wake them.

The subjects' brain activity was also being monitored. When they reached the rapid-eye-movement (REM) stage of sleep, when most dreams occur, a shot of scent was administered via the olfactometer for ten seconds.

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The dreamers continued sleeping for another minute until the scientists woke them up and asked them to describe their dreams and rate the experience as emotionally negative or positive.

Each subject was interviewed three times: Once after a rose-infused dream, once after smelling the sulfuric scent of rotten eggs, and once after no odor was administered.

The results showed that smelling roses gave nearly all dreams a pleasant tint, whereas the rotten eggs colored dreams negatively.

The control group generally did not report any change in their dreams, although one control dreamer said she and a grinning woman were both disgusted by the smell of something rotten.

Smell of Sleep

Tore Nielson, director of the Dream and Nightmare Laboratory at Montreal's Sacré-Coeur Hospital, commended the research for its technically sophisticated techniques, although he said the structure of the experiment could have been stronger.

Nielson, who was not involved in the study, said he's intrigued that the odors influenced dreams indirectly through emotions, rather than through the direct incorporation of smells.

"This indirect effect may offer a clue to processes of dream formation, i.e., that emotion is the first step in a dream's representation of an important external event," he said in an email.

However, he added, "since the authors waited only one minute between stimulus and awakening, we cannot be sure whether more specific representations of the smells may not eventually have appeared in the dreams."

Neil Bhattacharyya, an ear, nose, and throat surgeon at Brigham and Women's Hospital in Boston, Massachusetts, said the study is interesting and novel.

"We know there's a link between smell and memory," said Bhattacharyya, who was not involved with the study, "and now there seems to be a link between smell and the sleep centers of the brain."