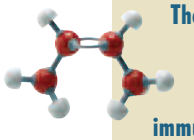


The Dartmouth Immunology COBRE (Center of Biomedical Research Excellence), a cross-disciplinary effort to better understand the immune system, has $6 million in new funding.

Movie scenes serve as signals to smoke

Smokers who are trying to quit know to avoid people and places likely to remind them of their habit. But now a study in the *Journal of Neuroscience* shows that simply watching actors smoke on-screen may induce an urge to light up, by activating regions of the brain associated with both the reward system and the physical act of smoking.

The study, conducted in the lab of Dartmouth's Todd Heatherton, Ph.D., provides new insights into an area of psychology called cue reactivity; its focus is how people react when exposed to cues associated with a behavior they are trying to regulate, such as smoking or overeating. DMS's James Sargent, M.D., a coauthor of the study, had previously found that the more smoking there is in a movie, the more smokers report craving a cigarette after watching it. Sargent and Heatherton wanted to explore this phenomenon more deeply.

Smokers showed greater activity in the brain's reward region.

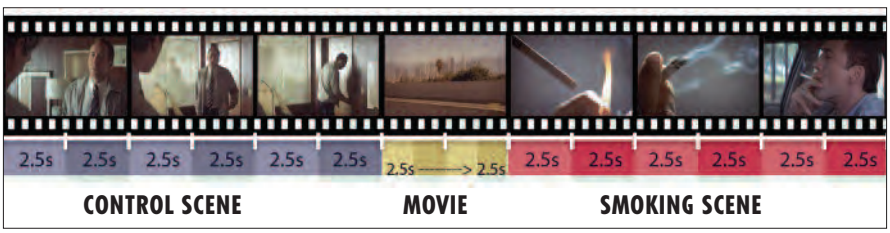
Scenes: To find out what happens in smokers' brains when actors smoke on-screen, Heatherton and graduate student Dylan Wagner designed a study showing scenes from the 2003 movie *Matchstick Men*, which has a lot of smoking in it but not a lot of other potentially confounding actions, such as violence. They measured the brain activity of both smokers and nonsmokers using functional magnetic resonance imaging (fMRI).

The participants did not know that smoking was the subject of the research. "We thought it was important for the participants not to know what the study was about," says Heatherton, lest that knowledge alter the results.

Area: Compared to nonsmokers, smokers showed greater activity in an area of the brain called the reward region, which is associated with cue reactivity. Smokers also showed greater activity in areas associated with the motor actions of smoking. "This was really interesting and a bit of a surprise," says Heatherton. "You're getting a double whammy—both the reward system that says it would be good to have a cigarette and the motor systems are now active. It's like sharing a cigarette with the actor."

The results have important implications. "One of the things that we know causes problems for people trying to control a behavior, like smoking, is exposure to cues associated with that behavior," says Heatherton. So, if smokers trying to quit were aware that just watching someone smoke in a movie might increase their urge to smoke, they could try to avoid such situations.

Cue: The next step will be linking the brain activity the study showed to real-world behavior. For example, does the degree of someone's cue reactivity predict how successful the person is at giving up smoking? And what brain systems are involved in overriding the cues? Heatherton's group is already seeking answers to these and other questions. Lauren Ware



These are stills from *Matchstick Men*, which was used in a study analyzing brain activity in smokers.

Test-imony

A rise in the incidence of pulmonary emboli, blockages in the arteries that carry blood from the heart to the lungs, may be overdiagnosis, says a DMS team. In 1998, a new CT scan was able to better detect such blockages; in succeeding years, their incidence jumped 81%—but the death rate from the condition stayed about the same, and complications associated with treatment rose 71%. "Many assumed this highly sensitive test would improve outcomes," the team wrote in *Archives of Internal Medicine*. But "the increased sensitivity . . . may have a downside: the detection of emboli that are so small as to be clinically insignificant."

Safe sedation

When children need anesthesia, are they safer in the hands of an emergency physician, a pediatrician, an anesthesiologist, or some other specialist? It turns out it doesn't matter who provides sedation, according to a paper coauthored by two DH anesthesiologists. Sedation performed outside versus inside an operating room "is unlikely to yield serious adverse outcomes," they wrote. The study, published in *Pediatrics*, found that there was no greater risk of complications when a child was sedated by one type of clinician over another, as all had similarly low complication rates. ■