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## **Mindful Chocolate and Other Adventures in Olfaction**

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## About the Author



Ellen Langer, Ph.D., Professor of Psychology at Harvard University, was the first woman in the psychology department to receive tenure. She has earned three distinguished scientist awards, the Sparks Award for Unifying psychology and the Liberty Science Genius Award. She is considered the mother of mindfulness, having conducted research on the topic for forty-five years; the mother of positive psychology; and arguably the mother of mind/body medicine. Not only does she have a lot of children, she has hundreds of research papers and bestselling books including, *Mindfulness*, *The Power of Mindful Learning*; *On Becoming an Artist: Reinventing*

*Yourself Through Mindful Creativity*; and *Counterclockwise: Mindful Health and the Power of Possibility*. [LinkedIn](#).

## Mindful Chocolate and Other Adventures in Olfaction



Clouds of chocolate formed over drinks during a flavor cloud event at Cafe ArtScience, the experimental restaurant operated in Cambridge Massachusetts (2014-2019), on the move of Le Laboratoire from Paris to Cambridge. The server uses “Nimbus,” the first hand-held flavor cloud design by designer Tom Devlin with Edwards and his Harvard student Rachel Field. Photo: © Phase One Photography

Many of us may know that the perception of scent (olfaction) is 85% of flavor perception. When we have a stuffy nose, food simply loses some of its appeal. As Ausiello and Edwards write in their article in the current issue, there are literatures on clinical trial findings pointing to the ways scent can raise appetite, suppress appetite, and alter food cravings. It would seem, then, that smell provides an opportunity for satiety and weight loss.

Smell a croissant first and you will want to eat more of it. Smell chocolate and again, we will want to eat more of it. On the other hand, if we smell steak before eating either the croissant or chocolate, we would probably eat less. This suggests interesting ways we can use smell to control our weight. But weight is not the only thing that can change by mindfully using the power of smell.

Proust was onto something even bigger than he knew when the crumb he ate of a Madeleine soaked in his aunt’s concoction of lime flowers flooded his mind with

memories of his past. Smells and tastes from the past make the past lively with consequences greater than most realize.

In my book, *Counterclockwise* (Langer, 2013), I describe several experiments that more than hint at the power of smell for improving much of our health. Consider the original counterclockwise study (Pagnini et. al., 2019). It was the first study I conducted that dramatically showed how changing our minds simultaneously changes our bodies. In this study, we wanted to turn back time. We retrofitted a retreat to appear as it would twenty years earlier. Books, newspapers, and furniture were all as they would have been at that earlier time. We had elderly men live at the retreat for a week as if they were their younger selves, making past memories especially vivid. As a result of embodying their younger selves, their vision improved, their hearing improved, their memory improved, and they looked noticeably younger. When smells take us back in time, more is happening than one would think.

As an aside, our counterclockwise study is portrayed in the “Havana Wild Weekend” episode of the TV show, *The Simpsons*. They got most of the retreat study right except that they suggested that taking people back in time increased their sexual behavior, which we did not examine.

Consider another study showing the power of the mind that Ali Crum and I conducted several years later (Crum & Langer, 2007). We asked chambermaids how much exercise they were getting. Because they believed exercise was what you do after work. Since after work they were just too tired to exercise, they believed they weren’t getting any exercise. Imagine spending a day like theirs physically exerting themselves at every turn and not realizing they were actually getting as much or more exercise than most of us. The study was simple. We taught them that their work was indeed exercise and explained how making beds, for example, was similar to working on some of the machines at the gym. That’s all we did. We changed their mindsets so that now they saw their work as exercise. As a result, they lost weight, there was a change in body mass index and their blood pressure came down. All of this happened without working harder or eating less.

What few of us realize is that the loss of scent perception is one of the strongest indicators of shortened life span and conversely, promotion of scent may increase life span — although the reasons for this are not yet not entirely understood (Xu et. al., 2020). While neuro-degeneration is typically reflected in a loss of scent perception for Alzheimer’s and Parkinson’s, there are exciting data that indicate that exercising scent perception may slow onset (Zou et. al.. 2016). Stem cells are formed in the brain in a process that passes through the olfactory bulb and thus, as Ausiello & Edwards suggest

in their article, it may be that perception of scent plays a role in the differential of stem cells in the brain. This research has only touched the tip of the iceberg regarding exciting possibilities for how we may change our bodies simply through smell. Consider even more unusual applications of these olfactory findings.

In several of our studies, we've found that people with type 2 diabetes can control their blood sugar level with their thoughts. For example, in one study (Park et. al., 2016) participants with type 2 diabetes arrived at the lab, and several health measures were taken. We then ask them to play video games on the computer in the room and ask them to change the game they were playing every 15 minutes or so. We did that to ensure that they looked at the clock next to the computer. Unbeknownst to them, for one-third of the participants, the clock was rigged so that it was running at twice its usual speed; for one-third of them the clock was running at half speed, and for the rest the clock time was accurate. The question we were asking was "would blood sugar level follow real or perceived time?" The answer was clear. Blood sugar level corresponded to the time they thought it was rather than to real time.

We know from Pavlovian conditioning that the repeated pairing of a neutral stimulus with a bodily response eventually results in the neutral stimulus being able to elicit the bodily response on its own. Pavlov recognized that his dogs salivated merely at the sight of meat because the sight of meat was followed by consuming the meat. The same should result for the dogs being exposed simply to the smell of the meat. It is not just in dogs. Pavlovian conditioning also works with people. Repeatedly pairing a specific smell with something that causes a bodily change, could come to produce that bodily change just with the smell alone.

Consider that broccoli is good for diabetes. It helps reduce blood sugar levels and increases insulin sensitivity. The smell of broccoli alone over time should have this same effect.

The smell of cigarette smoke is always paired with inhaling the cigarette. If we could create the smell of the smoke without it having any deleterious effects, could smokers be satisfied with the smell alone?

Let's return to the croissant and chocolate examples from above. Consider if instead of a brief smell of the desired but forbidden food, we spent time smelling the food and imagined ourselves fully eating it. Instead of just a smell of each which we all know leads us to eat more than we planned, consider what might happen if we imagined eating the whole thing smelling the croissant or chocolate before each bite to make our imagination as vivid as possible.

When I was a teenager, I spent Saturdays with my friend Lois. She was always thin and I was always watching my weight. Because she was a little older than I was, she typically determined how we would spend the day. Every Saturday we'd go out for either a banana split or a hot fudge sundae. She would eat whichever she chose that day, and I would watch. I consumed each bit with her in my mind. Bite after bite, we consumed the treat together. Surprisingly, when she finished the forbidden dessert, I was actually full. Research my lab members and I have done over the past four decades tells us that if our minds are fully engaged in the eating, so too would be our bodies.

Most recently, we have come up with an idea of Mindful Chocolate. Mindful Chocolate is a wet cloud of actual chocolate. The cloud is made of little droplets that have just the right size so that when you smell them, they land in your nose, and have a tendency to get up to your olfactory bulb. The olfactory experience of this cloud of flavor is itself powerful, and while smelling chocolate at first makes you hungry, research has shown that if you smell chocolate long enough it can make you full (Massolt et. al., 2010). Getting to this point of satiety with Mindful Chocolate is more than just smelling. It is imagining the whole experience, from unwrapping the chocolate, to deciding how much of it to take, to consuming it. With the help of Darin Olien, the superfood pioneer, we are sourcing our chocolate from the highest quality organic regenerative chocolate farms in the world. Smelling the best chocolate should enhance imagined eating. The possibilities for the use of smell to control our health are enormous. Most important may be that we can implement them ourselves without the need for medical intervention.

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