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Getting Sprung: Biological Underpinnings of Spring Fever

Cynthia McKelvey

Clarissa Fortier

Getting Sprung

Biological Underpinnings of Spring Fever

By Cynthia McKelvey

Before I was a student at Oberlin, the phrase 'Spring Fever' meant little to me. However, once I came to school, the seasons grew more palpable. Perhaps due to the daily hikes around campus, something about the air seemed to penetrate deeper into my skin. I felt especially vulnerable to the mood swings of Ohioan weather. I dealt with winter by resigning to it.

On the auspicious day when the clouds surrendered to sunshine and warmth, I was thrust out of my hibernation by the delicate savor of flowers and fresh grass. The sun filled me with a restless energy that invited me to skip class, sit out on North Quad, and look for four-leaf clovers with a friend. I partied later into the night and struggled to fall asleep as the birds chirped in the early morning. Over time, it became clear to me that many students are stricken with this same 'fever' come spring. A particularly bright-eyed friend became especially reanimated in spring, proclaiming he was 'solar powered'.

Talk to any Obie long enough and eventually you will learn the unique way that the seasonal changes in sunshine and warmth affect them. Their explanations range from the transformation of the monotonous winter grey into bright blue skies, longer days, warmer air, and a pleasant scent of renewal. But is there a more deep-seated biological rationale for such changes in mood and behavior? Is Spring Fever merely a social construct or is it an artifact of evolution?

"I would not be surprised if there was a biological imperative to go out and have fun in the spring," muses Zachary Weil, an assistant professor at the Wexner Medical Center of Ohio State University. Weil, who studies seasonal changes in behavior and physiology in animals, speculates that the drive to get vitamin D from sunlight has something to do with Spring Fever. When the ultraviolet wavelengths in sunlight strike the skin, they stimulate light-reactive chemicals to synthesize vitamin D. The increased production of vitamin D in sunnier months may improve both physical and emotional health.

Overall, the scientific literature on Spring Fever is sparse. Just as it is impossible to appreciate light without darkness, scientists find it useful to study what drags us down in the winter, and to assume that the alleviation of those factors causes us to bounce back in the spring.

Melatonin, affectionately known as the 'hormone of darkness', is associated with seasonal changes in mood, behavior, and health. The pineal gland in the brain modulates the production of melatonin based on light levels. When light enters the eye, it stimulates neurons that connect to hypothalamus, which tells the pineal gland to stop producing melatonin. However, if the pineal gland remained in darkness, it would modulate melatonin cyclically, approximately 10 hours on, 14 hours off. According to Weil, the pineal gland can sometimes 'think' it is in darkness during the day.

"We're not aware of this consciously — because our eyes adjust so quickly — but the lights inside our offices and homes are orders of magnitude dimmer than the lights outside." Sunlight, says Weil, is around 10,000 times brighter than incandescent and fluorescent bulbs. "People in northern climates that might go to work before the sun comes up and leave work after the sun goes down may never be exposed to the level of sunlight that's necessary to turn down our melatonin production." Fathom the brain as an ancient machine responding to archaic devices such as the eyes and ears and it is conceivable that the brain may interpret this situation as perpetual darkness.

Conversely, once the days begin to lengthen and people are exposed to more morning sunlight, the brain produces melatonin for shorter intervals. The difference in melatonin production in the winter versus the spring is the predominant rationale for the prevalence of winter depression, or Seasonal Affective Disorder (SAD) in northern latitudes. Melatonin's effect on mood and behavior is complicated, though. Even though longer periods of melatonin production have been associated with SAD, melatonin can also be used as a treatment for people suffering from winter depression. Experimental therapies have shown that depending on when the dose is given, in conjunction with the patient's natural sleep-wake cycle, melatonin can actually help regulate the circadian rhythm and relieve depression. In general, melatonin production that begins in the evening and stops in the early morning helps most people combat the winter doldrums, which mimics a springtime daylight cycle.

For Obies though, nothing competes with actual sunshine and warm air. Fourth-year Nicole's fondest spring memory happened in the last few days of her first year. Having just pulled three consecutive all-nighters to finish a paper, she shifted her focus to an attractive classmate. "I remember running into him at Stevie, but even inside Stevie it smelled like spring." Emboldened by the triumph of having just completed her freshman year, she decided to catch up with him later that night at a party. "I remember walking back home with him, and I don't know, there was just something in the air."

Things fizzled out between Nicole and her spring fling, but her experience remains an idyllic memory of springtime in Oberlin. "I was totally giddy and euphoric. It was a very spring collegiate freshman year experience." Nicole's experience is one of many similar ones from several students I interviewed about their experiences of springtime in Oberlin. Some ancient vestige of biology springs from the increase in vitamin D, the decrease in melatonin, mixed with end-of-the-year excitement to awaken joy among the students.