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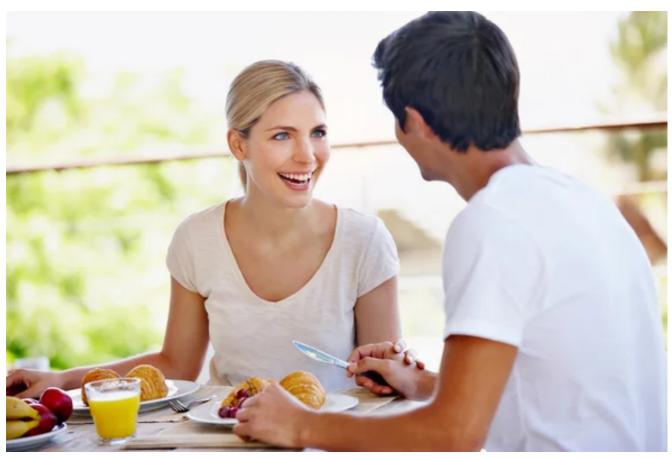
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COGNITION

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The time of day affects how people think

By Francesca Gino on March 22, 2016



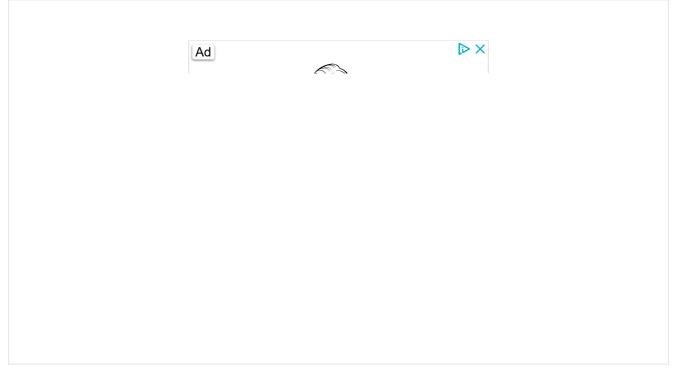
In the morning, we start off feeling fresh and rested (ideally, at least). As the day wears on, sustained cognitive engagement depletes our mental resources, and our behavior changes for the worse. Credit: ©iStock

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Every day we make decisions that have important implications for our happiness and how we live our lives. Whether we are studying for an exam, preparing for a job interview, or deciding on the best outfit for a first blind date, these very different situations have something in common: They happen at a certain time of day, a time we often can choose or control.

When making decisions, we often don't consider how the time of day might affect our choices. Rather, we decide on a time based on what's most convenient to us. Yet recent research suggests that time of day has an important effect on our behavior and the actions of others.

In the morning, we start off feeling fresh and rested (ideally, at least). As the day wears on, sustained cognitive engagement depletes our mental resources, and our behavior changes for the worse. We are ruder and more cynical toward people, and more likely to recommend courses of action that are not optimal, research shows. At work, persistent cognitive fatigue leads to burnout, lower motivation, increased distractibility, poor information processing, and impaired performance.



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Recent research I conducted with Hans Henrik Sievertsen of the Danish National Centre for Social Research and Marco Piovesan of the University of Copenhagen demonstrated that the time of day influences students' performance at school. We used data from standardized tests for the full population of children, ages 8 to 15, attending Danish public schools between 2009 and 2013—a sample of over two million data points. Our analyses showed that the later in the school day the test was taken, the worse students performed on the test.

Fortunately, we found that breaks can recharge students' energy: a 20 to 30 minute break was linked to an improvement in test scores that is larger than the decrease in scores caused by an hour's deterioration. Importantly, we also found that the effect of time of day and of breaks was not homogeneous: low-performing students were more affected both by breaks and by the time of the day when the test was taken.

The effect of time of day influences all of us, including experts. In <u>one study</u>, researchers Shai Danziger, Jonathan Levav, and Liora Avnaim-Pesso analyzed 1,112 bench rulings in a parole court and plotted the proportion of favorable rulings over the course of the day. The data showed that as judges advanced through a day's cases, they became more likely to deny a prisoner's request and accept the status quo outcome. Their proportion of favorable rulings started out high early in the day, at about 65 percent, but dropped off rapidly. In fact, by the time court broke for lunch, the judges' proportion of favorable rulings was close to zero.

When court resumed, the pattern repeated itself: favorable rulings were high again, only to drop off close to zero by the end of the day. Interestingly, neither the judges nor the panelists who advised them were aware of the gradual deterioration of mental energy throughout the day or of the positive recharging effect of a lunch break.

Similar results have been found in other contexts, including consumers choosing among various products. In addition, due to such fatigue, primary care doctors <u>have been found</u> to prescribe unnecessary antibiotics for acute respiratory infections. As doctors get worn down, they prescribe antibiotics more often. In fact, about 5% more patients received antibiotics at the end of a clinic session as compared to the beginning. Thus, the cumulative demand of clinicians' decisions leads them to make more inappropriate choices later in the day.

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Considered together, this evidence points to a clear conclusion: The overall demand of multiple decisions on people's cognitive resources throughout the day erodes their mental resources and leads to potentially inappropriate and all-around bad decisions.

In addition, time of day influences how we interact with others. In recent research (not yet published), Maryam Kouchaki (of Northwestern's Kellogg School of Management), Dan Cable (of the London Business School), and I reviewed field data from the MBA admissions office of a top U.S. business school. Somewhat shockingly, we found that time of day influences admissions officers' evaluations of applicants as much as their educational background and work experience. Specifically, applicants were evaluated worse later in the day because interviewers conducted less structured interviews as the day wore on. When we are fatigued,

it turns out, we are also less likely to impose structure on our work activities. Interestingly, neither students nor admission officers were aware of the relevance of such time-of-day effects.

We know that fatigue tends to accumulate over the day, but we generally fail to consider that our performance suffers as a result. Add to that the fact that we often feel concerned about being as productive as we can and thus often turn opportunities for a break into additional work (e.g., eating lunch at our desk). We can do better by taking breaks, and by carefully choosing the time of that appointment, interview, or date.



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