How your internal clock plays a key role in optimizing mental performance

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Whether you are an early bird or a night owl, your internal clock plays a critical role in maximizing your mental performance, according to a recent Baycrest study. This effect is so strong that it can significantly

impact academic performance for adolescent students and the results of brain health assessments for older adults.

"A person's tendency to be a morning or an evening person is called their chronotype. Because of differences in chronotypes, we see significant differences in the time of day at which people are best at paying attention, learning, solving problems, making complex decisions and more," says Dr. Lynn Hasher, Senior Scientist at Baycrest's Rotman Research Institute, the study's lead author and a key leader in this field of research.

An individual's chronotype drives physiological and intellectual functioning throughout the day. Morning chronotypes rise and peak early in the day, while evening chronotypes have a later peak. Chronotype varies from person to person and also changes with age, from childhood to adolescence to old age. In general, adolescents are likely to be night owls, while older adults are more likely to be morning people.

In this scientific literature review, the researchers analyzed more than 150 previously published studies examining chronotypes and their effects on mental performance. Conducting the research with Dr. Hasher were Dr. Cynthia May (Professor of Psychology, College of Charleston) and Dr. Karl Healey (Associate Professor of Psychology, University of Michigan).

They found that a person's chronotype has a strong effect on their ability to pay attention, learn, solve problems, make complex decisions and even behave in an ethical manner. This means that a morning person may have more difficulty learning new information later in the day, while an evening person may struggle to make decisions before noon.

Chronotype appears to have the strongest impact for adolescents and older adults. Adolescents are generally strong evening chronotypes, but

they tend to start school early in the morning, which may have a negative effect on their academic performance. In contrast, because the majority of older adults show a strong biological preference for the morning, they tend to perform much worse on cognitive tests later in the day, which could in turn lead to unnecessary stress.

Overall, these results indicate the importance of recognizing and accounting for chronotype in a wide variety of settings, from academic and medical situations to social settings and more.

"By better understanding and acknowledging chronotypes, we can help individuals optimize their mental performance and live their best possible lives, no matter their age," says Dr. Hasher.

The paper is published in the journal *Perspectives on Psychological Science*.

More information: Cynthia P. May et al, For Whom (and When) the Time Bell Tolls: Chronotypes and the Synchrony Effect, *Perspectives on Psychological Science* (2023). DOI: 10.1177/17456916231178553

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