

## iPhone separation linked to physiological anxiety, poor cognitive performance

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**Source:** University of Missouri

Cell phone use has become a common part of life as mobile devices have become one of the most popular ways to communicate. Even so, very little research exists on the impact of cell phone usage and specifically what happens when people are separated from their phones. Now, research from the University of Missouri has found that cell phone separation can have serious psychological and physiological effects on iPhone users, including poor performance on cognitive tests. The researchers say these findings suggest that iPhone users should avoid parting with their phones during daily situations that involve a great deal of attention, such as taking tests, sitting in conferences or meetings, or completing important work assignments, as it could result in poorer cognitive performance on those tasks.

"Our findings suggest that iPhone separation can negatively impact performance on mental tasks," Russell Clayton, a doctoral candidate at the MU School of Journalism and lead author of the study, said. "Additionally, the results from our study suggest that iPhones are capable of becoming an extension of our selves such that when separated, we experience a lessening of 'self' and a negative physiological state."

Clayton, along with Glenn Leshner, former professor at MU, now at the University of Oklahoma and Anthony Almond, doctoral student at Indiana University-Bloomington, found that when iPhone users are unable to answer their ringing iPhones while solving simple word search puzzles, their heart rates and blood pressure levels increased, as did feelings of anxiety and unpleasantness. Also, performance (number of words found on word search puzzles) decreased as compared to when iPhone users completed similar word search puzzles while in possession of their iPhones.

For their study, the MU researchers asked iPhone users to sit at a computer cubicle in a media psychology lab. The researchers told the participants that the purpose of the experiment was to test the reliability of a new wireless blood pressure cuff. Participants completed the first word search puzzle with their iPhone in their possession and the second word search word puzzle without their iPhone in their possession or vice versa while the researchers monitored their heart rates and blood pressure levels.

While completing the first puzzle, the researchers recorded participants' heart rate and blood pressure responses. Participants then reported their levels of anxiety and how unpleasant or pleasant they felt during the word search puzzle. Next, and while in possession of their iPhones, participants were informed that their iPhones were causing "Bluetooth interference" with the wireless blood pressure cuff, and that they needed to be placed further away in the room for the remainder of the experiment. The researchers then provided the participants a second word search puzzle. While working on the puzzle, the researchers called the participants' iPhones. After the phones finished ringing, researchers collected blood pressure and heart rate responses. Participants then reported their levels of anxiety and how unpleasant or pleasant they felt during the word search puzzle. The researchers found a significant increase in anxiety, heart rate and blood pressure levels, and a significant decrease in puzzle performance when the participants were separated from their iPhones as compared to when iPhone users completed similar word search puzzles while in possession of their iPhones.

### Story Source:

The above story is based on [materials](#) provided by [University of Missouri](#). *Note: Materials may be edited for content and length.*

### Journal Reference:

1. Russell B. Clayton, Glenn Leshner, Anthony Almond. **The Extended iSelf: The Impact of iPhone Separation on Cognition, Emotion, and Physiology**. *Journal of Computer-Mediated Communication*, 2015; DOI: [10.1111/jcc4.12109](https://doi.org/10.1111/jcc4.12109)

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