



## EXTENDED ABSTRACTS

### Dehydration and Cognition Sydney Frank\*

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## ABSTRACT

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Dehydration is a common issue that many people will face at some point during their lifetime. Dehydration can cause an abundance of health problems, both physically and mentally. However, many people are unaware that a lack of hydration can impair their cognitive ability, which can be especially harmful to individuals enrolled in a university. College students are often overwhelmed by the chaos of homework and other obligations, causing them to spend little time reflecting on their health and well-being. Individuals may forget to eat or drink water daily, which can have negative consequences for both physical and mental health. Specifically, dehydration can cause a significant decline in a student's academic performance.

First, eighty percent of the human brain is composed of water. Neurological transmissions cannot occur properly if the brain does not have an adequate water supply. Without enough water, the brain is not able to transmit and receive information effectively. Due to the brain's decreased ability to transmit and receive information, one's learning capabilities and performance declines: studies show that once thirst is felt mental performance including memory, attention and concentration decreases by as much as 10 percent. Common ways to tell if one is dehydrated is if he or she experiences fatigue, headaches, or dizziness. Although the recommended intake of water for the average individual is roughly eight glasses a day, this number is not frequently met. Next, according to an article from the Psychiatry and Behavioral Health Learning Network, being dehydrated can alter one's ability to think clearly: researchers found that athletes who lost fluid equal to 2 percent of their weight took a hit to their cognition. The results also showed that even in a state of mild dehydration, people can have problems forming decisions and focusing.

Research done on undergraduate college pupils has shown that the average intake of fluids is lower than the recommended amount. Most people fail to drink the recommended eight glasses of water a day; a simple task that could improve their grades. Drinking water during exams has proven to improve scores. Scores improve due to an increase in brain activity and function that comes with consuming water.

At the University of Illinois at Urbana-Champaign, people

enrolled in a class titled "Food Science and Human Nutrition 120" were asked a variety of questions about their hydration status to determine if dehydration affected their cognitive abilities. When pupils were asked about how often they notice their hydration status, they had the option to respond with "I have never really taken inventory of my hydration status," "I only notice when I am dehydrated when it becomes severe; but, I choose to hydrate well at that time," "I occasionally notice my hydration status and make an effort to hydrate when needed (3+ days a week)," and "I pay attention to my hydration status and ensure that I am hydrating; regularly (5+ days a week)." Most of the people reported that they "Occasionally notice my hydration status and make an effort to hydrate when needed (3+ days a week)." These results support that individuals do not consider their hydration status enough; they only track their hydration status roughly three out of the seven days of the week. Students were also asked to answer 'True' or 'False' to the statement, "If I notice I am dehydrated, I also have noted that it has impacted my ability to learn." The results concluded that roughly eighty-four percent of people answered 'True' and felt that their cognitive function was altered when he or she was in a state of dehydration. Next, pupils were asked to respond 'True' or 'False' to the statement "If I notice that I am dehydrated, I realize that I am also feeling more tired than I should be at that time." The results found that ninety-four percent of responders said 'True' and felt that they were more tired when hydrated improperly.

In conclusion, many people struggle with dehydration. Those who are dehydrated often lack the ability to function at their full cognitive potential. Research has shown that college-aged individuals are especially at risk of not hydrating themselves properly. Lack of hydration puts students at a disadvantage regarding work ethic and examination scores; therefore, drinking plenty of water will help one receive better grades and retain information better. Water is one of the keys to success both mentally and physically.

Keyword: Dehydration, Health, water

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