



PRESS RELEASE

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Cortisol Response Predicts “Freezing” Under Stress by Police Officers

By nature of their service to society, soldiers, firefighters, and police have a high likelihood of exposures to extreme stress, which in turn, leaves them more susceptible to stress-related disorders. In a new study published this week in *Biological Psychiatry*, researchers who studied the stress response of police recruits report a new biological marker that may be able to predict their risk for future stress disorders and dissociation.

Dissociation, characterized by a subjective feeling of detachment, occurs among many people exposed to extreme stress. While dissociating, people have difficulty making decisions, initiating adaptive action, and learning. In severe cases, people may appear to be “in a fog”, to freeze behaviorally, or to behave in ways that reflect impaired judgment.

In the new study, scientists measured the morning cortisol levels of police recruits during their academy training. They then continued to follow-up with the volunteers for three years after the start of their active police service.

They found that greater cortisol awakening response during academy training predicted greater peritraumatic dissociation and acute stress disorder symptoms over the first 3 years of police service.

“These findings suggest that a greater cortisol awakening response, one marker of hypothalamic-pituitary-adrenal axis function, is associated with the severity of stress responding upon later exposure to trauma,” explained Dr. Sabra Inslicht, one of the study’s authors. “Our data add to the growing body of research that suggests that pre-existing markers predict individuals’ stress responses to threatening events.”

In other words, this biomarker may be able to predict the likelihood that a particular individual would suffer from symptoms long before ever being exposed to a traumatic event. However, the authors cautiously point out that these findings will need to be replicated in other populations exposed to trauma to verify the findings.

“These data raise important questions about the performance of traumatized police officers and military personnel that this type of experiment cannot answer. Our society relies on these people to

make quick life-or-death decisions under enormous pressure. We know that some percentage of these people will become functionally compromised while making these decisions, related to the emergence of dissociative states,” commented Dr. John Krystal, Editor of *Biological Psychiatry*.

“How can we better evaluate their vulnerability under this pressure? Can biological markers help us to identify these vulnerable individuals? Can a better understanding of the underlying neurobiology help us to protect against dissociative states among these people who are putting themselves on the line on our behalf? These are just a few of the important current unanswered questions.”

A future line of this research is whether the early identification of potential risk and resilience factors will result in interventions that could prevent or diminish the long-term effects of trauma exposure. Researchers will also need to explore the development of protective strategies to support individuals identified as being at high-risk.

“This study is significant as a potential indicator in determining when people may exhibit stress symptoms in the future,” said Dr. Charles Marmar. “Few studies have prospectively examined the relationships among pre-exposure hypothalamic-pituitary-adrenal activity, acute stress reactions, and posttraumatic stress disorder (PTSD). The findings may lead us to new insights on how to identify those who are at a higher risk and contribute to novel interventions to prevent the development of PTSD.”

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Notes to Editors:

The article is “Cortisol Awakening Response Prospectively Predicts Peritraumatic and Acute Stress Reactions in Police Officers” by Sabra S. Inslicht, Christian Otte, Shannon E. McCaslin, Brigitte A. Apfel, Clare Henn-Haase, Thomas Metzler, Rachel Yehuda, Thomas C. Neylan, and Charles R. Marmar. Inslicht, McCaslin, Apfel, Metzler, and Neylan are affiliated with San Francisco Veterans Affairs Medical Center, San Francisco, California. Inslicht, McCaslin, Apfel, and Neylan are also with University of California, San Francisco, California. Metzler is also with Northern California Institute for Research and Education, San Francisco, California. Otte is with Charité University Medical Center Berlin, Campus Benjamin Franklin, Berlin, Germany. Henn-Haase and Marmar are with New York University, New York. Yehuda is with Mount Sinai School of Medicine and James J. Peters Veterans Affairs Medical Center, Bronx, New York. The article appears in *Biological Psychiatry*, Volume 70, Number 11 (December 1, 2011), published by Elsevier.

The authors’ disclosures of financial and conflicts of interests are available in the article.

John H. Krystal, M.D., is Chairman of the Department of Psychiatry at the Yale University School of Medicine and a research psychiatrist at the VA Connecticut Healthcare System. His disclosures of financial and conflicts of interests are available [here](#).

Full text of the article mentioned above is available upon request. Contact Donna Santaromita at d.santaromita@elsevier.com to obtain a copy or to schedule an interview.

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clinical contributions from all disciplines and research areas relevant to the pathophysiology and treatment of major psychiatric disorders.

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