

New Research From Psychological Science

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Read about the latest research published in *Psychological Science*:

[Hair and Salivary Testosterone, Hair Cortisol, and Externalizing Behaviors in Adolescents](#)

Andrew D. Grotzinger, Frank D. Mann, Megan W. Patterson, Jennifer L. Tackett, Elliot M. Tucker-Drob, and K. Paige Harden

Experiments in humans and animals suggest that testosterone plays a role in aggressive and status-seeking behavior. However, one meta-analysis suggests that endogenous testosterone in humans has a small effect on such behaviors and findings vary widely across individual studies. The authors hypothesized that inconsistent findings may be due, at least in part, to moderating variables. A large sample of adolescent participants provided saliva and hair samples and completed measures of rule breaking and aggression, pubertal development, peer deviance and prosociality, callous-unemotional traits, and parental monitoring. Hair testosterone was associated with aggression, particularly when hair cortisol was low; salivary testosterone was not associated with aggression. The data provided little evidence in support of nonhormonal factors as moderators. Analyses revealed one interaction in the opposite direction from that hypothesized and two three-way interactions; these findings should be explored in future work to determine whether they are replicable. The findings suggest that the neuroendocrine bases of externalizing behavior are more complex than previously thought.

[Is Source Information Automatically Available in Working Memory?](#)

Hui Chen, Richard A. Carlson, and Brad Wyble

We often remember bits of information without remembering how or where we encountered them, a phenomenon that has been explored extensively in the context of long-term memory. The authors investigated whether source amnesia also occurs with short-term memory, which would suggest an encoding failure as opposed to forgetting. In one experiment, participants saw a series of color words; each was printed in one of four colors. After each word, they had to indicate whether the word and the

ink were congruent or incongruent. On a surprise test, a substantial proportion of participants misreported the color of the ink they had identified as incongruent on the previous trial. Some selected the color indicated by the word, suggesting that they had memories of the semantic representations for word and ink color but could not tie the representations to their sources. Additional experiments produced further evidence of source-memory errors, indicating that source information is not automatically stored in working memory.

Beyond the 30-Million-Word Gap: Children's Conversational Exposure Is Associated With Language-Related Brain Function

Rachel R. Romeo, Julia A. Leonard, Sydney T. Robinson, Martin R. West, Allyson P. Mackey, Meredith L. Rowe, and John D. E. Gabrieli

The quantity and quality of language that children hear affects later linguistic, cognitive, academic, and social skills, and research has shown that language exposure varies widely according to family socioeconomic status (SES). To investigate the neural mechanisms underlying this relationship, the authors analyzed home audio recordings, behavioral data, and functional MRI data from 36 4- to 6-year-old children. Children who experienced more conversational turns with adults in the home recordings showed greater verbal ability and relatively greater activation in Broca's area during a passive-listening task, independently of other covariates such as SES, cognitive ability, and number of words spoken in the home. Activation in Broca's area mediated the relationship between conversational turns and children's verbal ability. Furthermore, conversational turns and Broca's area activation jointly mediated the relationship between parental education and children's verbal ability. The findings suggest both an environmental and a neural mechanism that may underlie SES-related disparities in children's language skills.

The Gender-Equality Paradox in Science, Technology, Engineering, and Mathematics Education

Gijsbert Stoet and David C. Geary

Women and girls continue to be underrepresented in science, technology, engineering, and mathematics (STEM) fields, even in countries with high levels of gender equality. Drawing from expectancy-value theory, the authors hypothesized that students' perceptions about how they perform relative to their peers may inform their educational and occupational choices. Data from an international survey of 15-year-olds showed that girls had scientific literacy similar to or greater than that of boys in a majority of countries. In countries such as Finland, where girls outperformed boys in science, girls generally performed even better in reading. Sex differences in personal academic strengths and pursuit of STEM degrees were greater in more gender-equal countries. A mediation analysis suggested that life-quality pressures may lead girls and women to engage more with STEM subjects in less gender-equal countries. Investigating individual competencies and expectancies in the context of broader social factors is important to understanding the gender gap in STEM fields, the authors conclude.