

SPOTTED

Off-key outcomes; visualizing variants; urine indifference and more

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Off-key outcomes

Music has long been considered a **potential autism therapy**. Results of a multinational randomized trial of **improvisational music therapy** strike a sour note, however: The five-month intervention did not have a statistically significant effect on autism severity scores. The findings appeared 8 August in the *Journal of the American Medical Association*.

Results of the study of 364 children came close to the usual cutoff for statistical significance, with a p-value of 0.06 for the comparison of children who did and did not receive the intervention. Despite this photo finish, the researchers note that any improvement was “small” and less than their predetermined cutoff for clinical relevance.

SOURCES:

Journal of the American Medical Association / 08 Aug 2017

Effects of improvisational music therapy vs enhanced standard care on symptom severity among children with autism spectrum disorder: The TIME-A randomized clinical trial

<http://jamanetwork.com/journals/jama/fullarticle/2647867>

Visualizing variants

About 1 percent of people with autism have a missing or extra copy of chromosomal region 16p11.2. Using data from the **Simons Variation in Individuals Project**, researchers have linked **duplications and deletions in this region** with complementary brain structure differences. For example, deletions are associated with a thicker **corpus callosum**, which joins the left and right brain hemispheres, whereas this structure is thinner in individuals with duplications. The study,

which was funded by *Spectrum's* parent organization, appeared 8 August in *Radiology*.

SOURCES:

Radiology / 08 Aug 2017

Brain MR imaging findings and associated outcomes in carriers of the reciprocal copy number variation at 16p11.2

<http://pubs.rsna.org/doi/full/10.1148/radiol.2017162934>

Urine indifference

Control mice housed with those missing NLGN3, **a gene associated with autism**, may pick up some of their littermates' less social habits: They show a **diminished interest in other mice's urine**, according to findings published 31 July in *eNeuro*. The influence goes both ways: Mutant mice show more anxiety and become less social when housed with controls.

"I was completely surprised by that," study investigator **Stéphane Baudouin**, a behavioral neuroscientist at Cardiff University in Wales, **told *Nature News***. "I was concerned straight away."

The effect places a question mark over studies in which controls and knockouts have been housed together. **Toru Takumi** of the Riken Brain Science Institute in Japan says he may change the way he studies mouse behavior based on the finding, and even reanalyze results from his previous studies, *Nature News* reported.

SOURCES:

eNeuro / 31 Jul 2017

Male and female mice lacking neuroligin-3 modify the behavior of their wild-type littermates

<http://www.eneuro.org/content/4/4/ENEURO.0145-17.2017>**Nature News** / 03 Aug 2017

'Autistic' mice make littermates less social

<https://www.nature.com/news/autistic-mice-make-littermates-less-social-1.22411>

Brain antennae

Primary cilia, tiny hair-like structures present on almost all body cells, share associations with **some autism-related genes**. New findings identify a role for these 'brain antennae' in **shaping connections** among neurons, highlighting a potential mechanistic intersection with autism. The results were published 7 August in *Developmental Cell*.

The study focuses on primary cilia on interneurons, the connectors between incoming and outgoing signals to the central nervous system. The absence of a single enzyme disrupts cilia function and leads to altered cell shape, changing the cells' connections with other neurons. The result, the investigators say, is a shift in the balance of excitatory and inhibitory activity in the brain, which some researchers theorize also is **altered in autism**.

SOURCES:

Developmental Cell / 07 Aug 2017

Primary cilia signaling shapes the development of interneuronal connectivity

[http://www.cell.com/developmental-cell/fulltext/S1534-5807\(17\)30552-X](http://www.cell.com/developmental-cell/fulltext/S1534-5807(17)30552-X)

Rethinking p-values

A team of 72 scientists is **calling for a reset of the p-value**, the famous cutoff used to distinguish statistically significant from insignificant results. Citing the '**reproducibility crisis**' in science, in which researchers are struggling to reproduce significant findings, the group argues for lowering the p-value from the standard 0.05 to 0.005, *Slate* reported 2 August.

SOURCES:

Slate / 02 Aug 2017

Will lowering p-value thresholds help fix science?

http://www.slate.com/articles/health_and_science/science/2017/08/how_will_changing_the_p_value_threshold_affect_the_reproducibility_crisis.html

Flame retardants

Polybrominated diphenyl ethers (PBDEs), which are used as flame retardants, accumulate in breast milk and have been linked to interactions with the **gene variant responsible for Rett syndrome**. A meta-analysis involving 3,000 mother–child pairs has found that for each 10-fold increase in maternal PBDE levels in breast milk or blood, the child's **intelligence quotient falls** by 3.7 points. The results appeared 3 August in *Environmental Health Perspectives*.

SOURCES:

Environmental Health Perspectives / 03 Aug 2017

Developmental PBDE exposure and IQ/ADHD in childhood: A systematic review and meta-analysis

<https://ehp.niehs.nih.gov/ehp1632/>

Tarnished standard?

It's time to revisit randomized controlled trials (RCTs) as the 'gold standard' for clinical research, says **Tom Frieden**, former director of the U.S. Centers for Disease Control and Prevention. RCTs have **important limitations**, including expense, the time they require and the possibility that their results may not apply to the broader population, he wrote 2 August in an editorial in *STAT*.

Studies that examine existing health records might be one alternative to costly or ethically untenable RCTs, Frieden wrote. "Glorifying RCTs above other approaches, even when these other approaches may be either superior or the only practical way to get an answer, relegates patients to receiving treatments that aren't based on the best available evidence."

SOURCES:

STAT / 02 Aug 2017

Why the 'gold standard' of medical research is no longer enough

<https://www.statnews.com/2017/08/02/randomized-controlled-trials-medical-research/>

Canine autism

Apparently, misguided fears about autism that drive some parents to not vaccinate their children can drive pet owners to not vaccinate their dogs. A story centered on pet owners in Brooklyn, New York, features a veterinarian describing clients **declining vaccines** because of such fears, reported *Slate* on 4 August. The viral tale triggered a burst of articles explaining that dogs don't develop autism.

SOURCES:

Slate / 04 Aug 2017

Anti-vaxxers are apparently refusing to vaccinate their dogs

http://www.slate.com/articles/health_and_science/science/2017/08/anti_vaxxers_now_refuse_to_vaccinate_pets.html

Sleep memories

Sleep issues can be among the **most intractable difficulties** people with autism face, and new

findings raise the specter that such nocturnal troubles could affect memory. Researchers say that we can detect our environment during sleep and **even establish new memories** from what we pick up during our nightly rest, reported *The Washington Post* on 8 August.

SOURCES:

Washington Post / 08 Aug 2017

Your brain can form new memories while you are asleep, neuroscientists show

<https://www.washingtonpost.com/news/speaking-of-science/wp/2017/08/08/your-brain-can-form-new-memories-while-you-are-asleep-neuroscientists-show>

Genomics funding

Six award recipients will be using **\$18.9 million** from the National Institutes of Health to work on integrating genome sequencing into clinical practice at a faster pace. The funding is part of the **Clinical Sequencing Evidence-Generating Research Consortium**, with a focus on diverse and underserved populations, the agency said in a statement on 8 August.

SOURCES:

National Institutes of Health / 08 Aug 2017

NIH accelerates the use of genomics in clinical care

<https://www.nih.gov/news-events/news-releases/nih-accelerates-use-genomics-clinical-care>

News tips

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