SPOTTED

Injury risk; stem-cell start; food faces

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Injury risk

Compared with the general population, people who have autism are at much greater risk of death from injury, with the largest risks coming from suffocation, asphyxiation and drowning. A study published last week in the *American Journal of Public Health* also found that the average age of people with autism at death is just about **half that of the general population**, at 36.2 versus 72 years. Earlier research also has shown a **greater risk of premature death** among people with autism

SOURCES:

American Journal of Public Health / 01 May 2017
Injury mortality in individuals with autism
http://ajph.aphapublications.org/doi/abs/10.2105/AJPH.2017.303696

Nonviolent findings

Having autism alone **isn't associated with committing violent crime**, according to research published this week in the *Journal of the American Academy of Child & Adolescent Psychiatry*. The researchers looked at violent crime convictions among 295,734 teenagers and young adults in Stockholm County, Sweden, of whom 5,739 had an autism diagnosis. Earlier findings had hinted at a link between violent offending and autism, but the individuals with autism who did not have co-occurring conditions had no greater odds of violent offending than did people in the general population.

More than a quarter — 28 percent — of people with autism in this study had another condition, such as attention deficit hyperactivity disorder, conduct disorder or substance abuse, that did increase the chances of committing a violent offense.

SOURCES:

Journal of the American Academy of Child & Adolescent Psychiatry / 01 Jun 2017
Autism and convictions for violent crimes: Population-based cohort study in Sweden
http://www.sciencedirect.com/science/article/pii/S0890856717301508

Genetic dosing

Chromosome 22q11.2 duplications are associated with **both autism and differences in brain structure** in brain scans, researchers reported last week in the *Journal of Neuroscience*. Children with 22q11.2 duplications have larger-than-average brains with thinner gray matter. Adding to growing evidence of autism and schizophrenia as 'yin-yang' conditions, children with 22q11.2 deletions, which are associated with increased schizophrenia risk, have unusually small brains with thicker gray matter.

SOURCES:

Journal of Neuroscience / 26 May 2017
Mapping 22q11.2 gene dosage effects on brain morphometry
http://www.jneurosci.org/content/early/2017/05/23/JNEUROSCI.3759-16.2017

Requiring reproducibility

Editors at the Nature Publishing Group have announced **additions to a checklist** researchers must complete when submitting a manuscript to Nature research journals. The editors say that the additions support their goal of facilitating reproducibility in science. Researchers will have to give greater detail about their experimental designs and analyses. The editors also plan to ask researchers to avoid using bar graphs and instead to use visualizations that show full data distributions.

With each published paper, Nature journals will publish a summary containing the additional details, bringing even more transparency to the sausage-making of science. In keeping with this openness, the editors have made the templates for reporting the required information available for any journal or institution to use under a Creative Commons license.

SOURCES:

Nature / 31 May 2017
Announcement: Towards greater reproducibility for life-sciences research in Nature

http://www.nature.com/news/announcement-towards-greater-reproducibility-for-life-sciences-research-in-nature-1.22062

Under threat

Science is under threat on **both sides of the Atlantic**, but political attitudes in the United Kingdom are a mixture of supportive and worrying, according to an editorial in *Nature* last week. The major U.K. political parties have pledged to back scientific research to varying degrees, yet the specter of **Brexit** threatens the **interactive, multinational ties** that have connected U.K. and E.U. researchers for decades. That threat likely pales with what U.S. scientists face, manifested in part in Trump's proposed budget, which calls for **deep cuts** across science agencies. The only bright spot for U.S. scientists is that the budget is probably a **nonstarter in Congress**.

In the face of these budget-cut threats, **Francis Collins** will **stay on as director of the National Institutes of Health** (NIH), the White House announced Tuesday. Collins became director in 2009 and has overseen major NIH programs, including former President Barack Obama's **BRAIN Initiative**. The initiative, Collins wrote on his director's blog, is expected to "**revolutionize neuroscience**" and help "millions of people," including those with autism.

SOURCES:

Nature / 31 May 2017
Keep shouting to save science
http://www.nature.com/news/keep-shouting-to-save-science-1.22089**The White House** / 06 Jun 2017
President Donald J. Trump announces key additions to his administration
https://www.whitehouse.gov/the-press-office/2017/06/06/president-donald-j-trump-announces-key-additions-his-administration

Stem-cell start

China is set to start its first clinical trials involving human embryonic stem cells — in this case, for Parkinson's disease. Researchers plan to prod the cells to form immature neurons and to inject several million of them into the brain. Researchers in Australia began a stem-cell trial for Parkinson's last year, but they derived their cells from unfertilized eggs coaxed into embryonic development. In neither study, however, are the cells fully formed dopamine-producing cells, which **has raised concerns**, according to a report in *Nature*, because their fate is difficult to predict.

International Stem Cell Corporation, the California-based supplier for the Australian team, reports that 97 percent of the stem cells do mature into neurons that release dopamine. Researchers in China also plan to conduct a similar trial for age-related macular degeneration. U.S. scientists have used the cells to grow brains in a dish, or '**mini-brains**,' as a neuroscience tool.

SOURCES:

Nature / 31 May 2017
Trials of embryonic stem cells to launch in China
http://www.nature.com/news/trials-of-embryonic-stem-cells-to-launch-in-china-1.22068

RDoC resource

Joshua Gordon, who took over as director of the National Institute of Mental Health last summer, has **announced the launch of a big-data resource**. The goal of the **All of Us Research Program** is to enroll a million-plus volunteers who will make their personal medical data available. Of these, about 100,000 individuals would supply data about psychiatric conditions. Participants will also complete surveys and provide tissue samples for research. This huge repository is expected to be a goldmine for researchers interested in how lifestyle and environment influence our biology.

SOURCES:

National Institute of Mental Health / 05 Jun 2017
The future of RDoC
https://www.nimh.nih.gov/about/director/messages/2017/the-future-of-rdoc.shtml

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Food faces

People with autism may have problems recognizing faces. A new study in *Scientific Reports* suggests this difficulty extends to faces formed from food. **Marina Pavlova** and her colleagues previously used their **Face-n-Food images** to compare sex-based differences in facial recognition. Now they report that when people with autism view faces created from foods in the style of 16th century Italian painter **Giuseppe Arcimboldo**, they are **less likely than controls to see faces** in the arrangements.

Women are generally better than men at detecting the faces in the food designs, but whether this is true among people with autism is not known: The autism group in the new study included only one girl. In another paper, published last year in *Frontiers in Psychology*, the researchers found that people with Williams syndrome also have difficulty seeing the faces in food images.

SOURCES:

Scientific Reports / 26 May 2017
Social cognition in autism: Face tuning
https://www.nature.com/articles/s41598-017-02790-1**Frontiers in Psychology** / 02 Aug 2016
Social cognition in Williams syndrome: Face tuning
http://journal.frontiersin.org/article/10.3389/fpsyg.2016.01131/full

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Seizure cells

A region in the middle of the brain called the reticular thalamus contains two types of neurons that could link seizure activity and conditions such as autism. The new findings, published Tuesday in *Cell Reports*, suggest that one cell type might be a **therapeutic target for seizures**. The other kind of neuron seems to play a role in schizophrenia and attention deficit hyperactivity disorder.

Like a 1950s switchboard operator, the job of the reticular thalamus is to direct signals to the appropriate regions on the brain's surface, says lead researcher **Jeanne Paz** of the Gladstone Institutes in San Francisco, California. The region has roles in attention, consciousness and perception, as well as seizures. In this work in mice, the team **used optogenetics** — the use of light to activate cells containing light-sensitive proteins — to distinguish the two cell types.

Paz said in a statement that **interactions between the two types** might explain why seizures often co-occur with conditions such as schizophrenia and autism.

SOURCES:

Cell Reports / 06 Jun 2017
Distinct thalamic reticular cell types differentially modulate normal and pathological cortical rhythms
http://www.sciencedirect.com/science/article/pii/S2211124717306861 /

Data rules

The International Committee of Medical Journal Editors has established **new requirements for**

manuscript submissions. In a statement published 5 June in a dozen journals, including the *Journal of the American Medical Association*, the *New England Journal of Medicine*, the *British Medical Journal* and *The Lancet*, the committee instructs researchers to provide a data-sharing statement for any manuscripts submitted to member journals, starting 1 July 2018. The statements must specify which data will be shared, when the data will be available, and who can access them and how. In addition, all clinical trials that enroll starting on or after 1 January 2019 must add a data-sharing plan as part of the trial's registration.

SOURCES:

New England Journal of Medicine / 05 Jun 2017
Data sharing statements for clinical trials: A requirement of the International Committee of Medical Journal Editors
http://www.nejm.org/doi/full/10.1056/NEJMe1705439

Prestigious prize

Brain science titan **Karl Deisseroth** of Stanford University in California has received the 4 million euro Fresenius Prize, one of science's "**most generous**" awards, the U.S. National Institute of Mental Health **announced last week**. He earned the honor through his work on three exciting fronts in neuroscience: **optogenetics**, the **CLARITY technique** of brain visualization and **a method for viewing brain circuits in real time** in rats. The Else Kröner-Fresenius Foundation awards the prize every four years. This year's focus was on mid-career scientists whose work addresses the biology of psychiatric conditions. Deisseroth gets to keep half a million euros for himself and devote the rest to his lab's research.

SOURCES:

National Institute of Mental Health / 31 May 2017
NIMH grantee wins one of science's most coveted prizes
https://www.nimh.nih.gov/news/science-news/2017/nimh-grantee-wins-one-of-sciences-most-coveted-prizes.shtml

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