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This press release contains:

- Summaries of newsworthy papers:
  - Can your brain overcome stress?
  - Schizophrenia and autism may share genetic abnormalities

- Geographical listing of authors

A PDF of the paper mentioned on this release can be found in the Academic Journals section of http://press.nature.com. Press contacts for the journals are listed at the end of this release.

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[1] Can your brain overcome stress?

DOI: 10.1038/MP.2014.28
Traumatic events may have both short- and long-term effects on specific brain structures, and recovery could depend on factors such as self-esteem and prolonged stress, reports a study published in *Molecular Psychiatry*. The work bases its analysis on individuals who directly experienced the Japanese Earthquake of 2011.

Stressful situations are known to affect the brain in the short-term, but little is known about the prolongation of these effects over longer time periods. Atsushi Sekiguchi and colleagues collected magnetic resonance imaging (MRI) data and assessed the psychological characteristics of 37 people who experienced the major earthquake that hit Japan in March of 2011. They did this both immediately and one year after the event occurred.

They find that part of the brain known as the orbitofrontal cortex (OFC) significantly increased in size from immediately after the earthquake to one year post-event. Further analysis suggests that this growth correlated with higher self-esteem scores. This discovery supports previous work that suggests that a reduction in OFC volume is a sign of emotional stress following a traumatic event, but that this alteration is reversible. The authors also found that some effects of the stressful event persisted more than one year after the earthquake; subclinical levels of depression and anxiety remained at the same level as they were immediately after the event, and the size of the hippocampus—a brain structure known to be vulnerable to stress—had decreased.

Sekiguchi and colleagues’ conclude that higher self-esteem, an important resilience trait in the context of stressful life events, could be a predictor of successful regulation of emotional distress and the associated increased OFC volume. While the results imply that stress-induced structural changes in the brain are not static, but dynamic, the authors note that further studies are necessary to examine whether alterations in brain structure due to stress are reversible.

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Please link to the scientific paper in online versions of your report (the URL will go live after the embargo ends): [http://dx.doi.org/10.1038/MP.2014.128](http://dx.doi.org/10.1038/MP.2014.128)

[2] Schizophrenia and autism may share genetic abnormalities

DOI: 10.1038/MP.2014.29

Mutations in a set of genes that play a role in epigenetic regulation may contribute to both schizophrenia and autism, according to a study published in *Molecular Psychiatry*. The findings suggest that perturbations in epigenetic regulation—where experience and environment affect the function of genes—that affect brain development could have a central role in the susceptibility to, pathogenesis, and treatment of mental disorders.

Schizophrenia is partially heritable, but the biological cause and progression of the disease are not well understood. A wide spectrum of genetic risk factors have been identified, and previous studies suggest that *de novo* mutations (DNMs)—alterations present in an affected individual, but not either parent—are a critical source of genetic risk in schizophrenia.

Shane McCarthy and colleagues performed genetic sequencing on 171 individuals, and analyzed the data to identify DNMs and the genes in which they are present. The results suggest that DNMs may happen at a higher frequency in people with sporadic schizophrenia (as opposed to those with a family history of the disease), and have functional consequences on the genes in which they are found. The authors also compared the genes they identified as having an increased proportion of DNMs to a database containing genetic information on other neurodevelopmental disorders. They found that the genes they identified have been implicated in autism and intellectual disability, supporting genetic overlap between these disorders and schizophrenia. Several of these genes have been shown to function as part of an epigenetic mechanism that regulates gene expression, called chromatin modification, suggesting that this may be an important risk mechanism in the development of these disorders.

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Please link to the scientific paper in online versions of your report (the URL will go live after the embargo ends): http://dx.doi.org/10.1038/MP.2014.29

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GEOGRAPHICAL LISTING OF AUTHORS...

The following list of places refers to the whereabouts of authors on the papers numbered in this release. For example, London: 4 - this means that on paper number four, there will be at least one author affiliated to an institute or company in London. The listing may be for an author's main affiliation, or for a place where they are working temporarily. Please see the PDF of the paper for full details.

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