

# Bracelets 4 Autism

Brain Development Steered By Newly Discovered RNA

April 19, 2010, 5:33 pm

Filed under: [autism](#) | Tags: [autism](#), [autism research](#), [autism spectrum disorders](#), [bioinformatics](#), [Boston](#), [brain](#), [brain development](#), [Children's Hospital](#), [Gabriel Kreiman](#), [genes](#), [Michael Greenberg](#), [Nathan Marsh Pusey](#), [neurons](#), [rna](#), [therapies](#)

Article Date: 16 Apr 2010 – 0:00 PDT

How does the brain work? This question is one of the greatest scientific mysteries, and neurobiologists have only recently begun to piece together the molecular building blocks that enable human beings to be “thinking” animals.

One fundamental property of the mammalian brain is that it continues to develop after birth, and one of the biggest drivers of the formation of new links between neurons is experience. Every time a baby sticks her finger on a pin or laughs in response to an adult’s embellished gestures, a cascade of genetic activity is triggered in her brain that results in new, and perhaps even lifelong, synaptic connections.

New research from the lab of Michael Greenberg, Nathan Marsh Pusey professor and chair of neurobiology

at HMS, in collaboration with bioinformatics specialist and neuroscientist Gabriel Kreiman, assistant professor of ophthalmology at Children's Hospital, Boston, has found that a particular set of RNA molecules widely considered to be no more than a genomic oddity are actually major players in brain development – and are essential for regulating the process by which neurons absorb the outside world into their genetic machinery.

“This discovery may inform disorders of cognition such as autism spectrum disorders,” says Greenberg. “It’s incredibly important to know all about the brain’s genetic regulatory mechanisms in order to think more deeply about how to develop therapies for treating these sorts of conditions.”

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### [Scientific Link To Autism Identified](#)

November 29, 2009, 10:04 pm

Filed under: [autism](#) | Tags: [amino acid](#), [ASD](#), [autism](#), [autism research](#), [Autism Spectrum Disorder](#), [Center for Modeling Optimal Outcomes](#), [emotion](#), [glutamate](#), [glycine](#), [homeostasis](#), [Linda Oliver-Perrier](#), [logic](#), [medical news today](#), [neuroscience](#), [neurotransmitters](#), [new jersey](#), [trigger](#), [William McFaul](#)

Article Date: 19 Nov 2009 – 3:00 PST

During its research into the application of neuroscience in business, a New Jersey based think tank, The Center for Modeling Optimal Outcomes®, LLC (The Center) made an inadvertent and amazing discovery.

The Center examined the neuroscientific dynamics of logic and emotion in decision making while researching neuroscience in business. They found unique corollary relationships between various brain chemicals (neurohormones, neurotransmitters, etc.). This apparent pattern led to a new path of research for the team outside of business. By looking at extensive scientific literature they discovered a cascade of hormones that emanate from the brain (hypothalamus). This same pattern of correlations was again apparent throughout the cascade. The group added a research biologist and started to test the pattern on genes (proteins). It remained consistent. The Center then called upon advisors from chemistry and physics to see if the pattern would apply in physical sciences.

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### [Big Brain Responses Triggered By Sights And Sounds Of Emotion](#)

November 7, 2009, 4:42 pm

Filed under: [autism](#) | Tags: [autism](#), [brain](#), [brain activity](#), [brain response](#), [cindy hagan](#), [david garner](#), [emotion](#), [emotional faces](#), [emotional voices](#), [magnetical fields](#), [MagnetoEncephaloGraphic](#), [med scanner](#), [medical news today](#), [MEG](#), [neuro-developmental disorders](#), [perception deficits](#), [PNAS](#), [posterior superior temporal sulcus](#), [Proceedings of the National Academy of Sciences](#), [test](#), [university of york](#), [York Neuroimaging Centre](#)

Article Date: 03 Nov 2009 – 6:00 PST

Researchers at the University of York have identified a part of the brain that responds to both facial and vocal expressions of emotion.

They used the MagnetoEncephaloGraphic (MEG) scanner at the York Neuroimaging Centre to test responses in a region of the brain known as the posterior superior temporal sulcus.

The research team from the University's Department of Psychology and York Neuroimaging Centre found that the posterior superior temporal sulcus responds so strongly to a face plus a voice that it clearly has a 'multimodal' rather than an exclusively visual function. The research is published in the latest issue of *Proceedings of the National Academy of Sciences* (PNAS).

Test participants were shown photographs of people with fearful and neutral facial expressions, and were played fearful and neutral vocal sounds, separately and together. Responses in the posterior superior temporal sulcus were substantially heightened when subjects could both see and hear the emotional faces and voices, but not when subjects could both see and hear the neutral faces and voices.

Researchers believe that the finding could help in the study of [autism](#) and other neuro-developmental disorders which exhibit face perception deficits.

Lead researcher Dr Cindy Hagan said: "Previous models of face perception suggested that this region of the brain responds to the face alone, but we demonstrated a supra-additive response to emotional faces and voices presented together – the response was greater than the sum of the parts."

Professor Andy Young added: "This is important because emotions in everyday life are often intrinsically multimodal – expressed through face, posture and voice at the same time."

The research involved tests on 19 people using York Neuroimaging Centre's £1.1 million MEG scanner which provides a non-invasive way of mapping the magnetic fields created by electrical activity in the brain.

Source: David Garner  
University of York

link: <http://www.medicalnewstoday.com/articles/169659.php>

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[Our first bracelet has been sold!](#)

September 5, 2009, 8:34 pm

Filed under: [autism](#) | Tags: [autism](#), [autism bracelets](#), [autism speaks](#), [bracelet](#), [chinese staircase](#), [donate](#), [donation](#), [sold](#), [string](#)

a red, 3 string chinese staircase has just been shipped off! \$4 will be donated to Autism Speaks.

thank you!

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[Easy Ordering!](#)

September 4, 2009, 5:45 pm

Filed under: [Uncategorized](#)

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## Visual Processing ‘Hinders Ability’ To Read Body Language: Autism Study

August 20, 2009, 12:10 am

Filed under: [autism](#) | Tags: [alex thomas](#), [article](#), [ASD](#), [autism](#), [autism research](#), [Autism Spectrum Disorder](#), [body language](#), [Dr Anthony Atkinson](#), [Dr Gina Gómez De La Cuesta](#), [durham university](#), [identify emotions](#), [medical news today](#), [national autistic society](#), [Neuropsychologia](#), [social interaction](#), [united kingdom](#), [visual processing](#)

Article Date: 05 Aug 2009 – 3:00 PDT

The way people with [autism](#) see and process the body language of others could be preventing them from gauging people’s feelings, according to new research.

With around half a million people in the UK affected by autism, the Durham University study suggests visual processing problems could be contributing to their day-to-day difficulties with social interaction.

The research showed that adults with autism spectrum disorder (ASD) found it difficult to identify emotions, such as anger or happiness, from short video clips of body movements without seeing faces or hearing sound.

Those adults who struggled most with this task also performed poorly when asked to detect the direction in which a group of dots moved coherently on a screen, thought to be due to visual processing problems.

People with autism often have difficulty in attributing mental states to others and this is thought to be one of the main causes of their struggle to know how other people feel. The Durham study, published in the academic journal *Neuropsychologia*, suggests visual processing problems may also be a contributing factor.

The findings of the study indicate that one of these visual processing problems is a difficulty in perceiving certain sorts of motion, particularly the movement of spatially separate elements spread over a relatively wide area that nevertheless move in the same direction, which is consistent with most previous findings.

The strong link between performances on the tests within the study suggests people with autism have trouble reading body movements because they process some basic visual information differently, according to Dr Anthony Atkinson from Durham University’s Psychology Department.

The typically developing adults – those without autism – in the study generally performed well in both tests.

Dr Atkinson, who led the study, says his findings help to further understand the underlying causes of social interaction problems experienced by people with autism.

Dr Atkinson said: “The way people move their bodies tells us a lot about their feelings or intentions, and we use this information on a daily basis to communicate with each other. We use others’ body movements and postures, as well as people’s faces and voices, to gauge their feelings. People with autism are less able to use these cues to make accurate judgements about how others are feeling. Our research attempts to find out why.

“Our findings point to a difficulty in perceiving or attending to motion as a contributor to the problem of gauging people’s emotions. We now need to look further to see how exactly this happens and how this may combine with potential difficulties in attention.”

Thirteen adults with ASD and 16 typically developing adults with the same age and IQ were studied. For the motion coherence test, participants were shown a number of dots on a computer screen with a certain number moving either left or right. The test had various difficulty levels depending on the percentage of dots moving coherently in one direction. This task taps one's ability to see the moving wood as distinct from the individual moving trees, says the author.

For the second test, the study participants were shown two sets of short video clips of people's body movements and had to identify the emotion expressed by those movements. In one set of video clips the whole body and head but not the face could be seen. The other set contained identical sequences of body movements but all that could be seen was reflective patches attached to the major joints.

Based on gestures and movements acted out in the videos, such as waving fists, stamping feet, and skipping, the study participants were asked to assign one of the basic human emotions to it: anger, disgust, sadness, fear or happiness. The individuals with autism were less accurate than the typically developing individuals in judging the emotions in both sets of video clips.

Dr Gina Gómez De La Cuesta, Action Research Leader at the National Autistic Society said: "This is an interesting study which supports the suggestion that people with autism may well process visual information differently to their peers.

"We warmly welcome all research which helps us further our understanding of autism, and how best to help and support those with the condition. Autism is a complex and lifelong disability, affecting an estimated half a million people in the UK, and the right support at the right time can make a huge difference to people's lives."

Some facts and figures (source: The National Autistic Society)

- Autism is thought to affect around half a million people in the UK today – that means 1 out of every 100 people has autism.
- Autism is a lifelong developmental disability that affects how a person communicates with, and relates to, other people. It also affects how they make sense of the world around them. It is a spectrum condition, which means that, while all people with autism share certain difficulties, their condition will affect them in different ways.
- Boys are four times more likely to develop autism than girls.
- People with autism often want to make friends but due to their disability find it difficult.
- 40% of all children with autism wait more than three years for a clear diagnosis.

Source:  
Alex Thomas  
Durham University

link: <http://www.medicalnewstoday.com/articles/159878.php>

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[New Genetic Study Of Asperger Syndrome, Autistic Traits And Empathy](#)

July 18, 2009, 1:19 am

Filed under: [Uncategorized](#) | Tags: [Asperger Syndrome](#), [autism](#), [Autism Research Centre](#), [Autism Research journal](#), [Autism Spectrum Quotient](#), [autistic traits](#), [cambridge](#), [cambridge university](#), [Dr Bhismadev Chakrabarti](#), [empathy](#), [Empathy Quotient](#), [genes](#), [genetics](#), [Genevieve Maul](#), [MRC](#), [Nancy Lurie Marks](#)

Article Date: 17 Jul 2009 – 0:00 PDT

Scientists from the University of Cambridge have identified 27 genes that are associated with either Asperger Syndrome (AS) and/or autistic traits and/or empathy. The research is published in the journal *Autism Research*. This is the first candidate gene study of its kind.

The research was led by Dr Bhismadev Chakrabarti and Professor Simon Baron-Cohen from the [Autism Research Centre](#) in Cambridge. 68 genes were chosen either because they were known to play a role in neural growth, social behaviour, or sex steroid hormones (e.g. testosterone and estrogen). The latter group of genes was included because AS occurs far more often in males than females, and because previous research from the Cambridge team has shown that foetal testosterone levels are associated with autistic traits and empathy in typically developing children.

The team carried out 2 experiments. First they looked at these genes in 349 adults in the general population, all of whom had filled in the Autism Spectrum Quotient (AQ) as a measure of autistic traits, and the Empathy Quotient (EQ) as a measure of empathy. Secondly, they looked at 174 adults with a formal diagnosis of AS, and compared them to controls.

The research found that single nucleotide polymorphisms (SNPs) in 27 out of the 68 genes were nominally associated with either AS and/or with autistic traits/empathy. 10 of these genes (such as CYP11B1) were involved with sex steroid function, providing support for the role of this class of genes in autism and autistic traits. 8 of these genes (such as NTRK1) were involved in neural growth, providing further support to the idea that autism and autistic traits could result from aberrant patterns of connectivity in the developing brain. The other 9 genes (such as OXTR) were involved in social behaviour, shedding light on the biology of social and emotional sensitivity.

Dr Chakrabarti commented: “These 27 genes represent preliminary leads for understanding the genetic bases of AS and related traits, such as empathy, in the general population. All of these are good candidates for independent replication studies in both low and high functioning autism samples. 5 of the genes we found have been previously reported in autism, but the other 22 have never before been reported in association with AS, autistic traits or empathy. We now need to test models of how these genes interact and construct ‘risk’ models for the development of AS.”

Professor Baron-Cohen added: “We chose to look at the genetics of AS because all other genetic studies have focused on classic autism, which can include learning difficulties and language delay. AS is a more ‘pure’ condition because these other factors are absent. These new results represent a significant advance over our previous work in showing that the sex steroid hormones (e.g. testosterone and oestrogen) influence social development and autistic traits. The new study also confirms earlier reports that other molecules (such as oxytocin) are important in understanding autism, autistic traits, and empathy.”

Notes:

1. The Autism Research Centre (ARC) is a group of scientists at Cambridge University (<http://www.autismresearchcentre.com>) who conduct basic biomedical research into causes of the condition, as well as population studies and intervention research.
2. The study was funded by Target Autism Genome, the Nancy Lurie Marks Family Foundation, and the MRC (UK).
3. Asperger Syndrome (AS) is a subgroup on the autistic spectrum. The other major subgroup is classic autism. Autism Spectrum Conditions occur in about 1% of the population and are

diagnosed on the basis of difficulties in social relationships, communication, and adjusting to change, alongside unusually narrow interests.

3. Full details of the study can be found in Chakrabarti, B, Dudbridge, F, Kent, L, Wheelwright, S, Hill-Cawthorne, G, Allison, C, Banerjee-Basu, S, & Baron-Cohen, S, (2009) Genes related to sex-steroids, neural growth and social-emotional behaviour are associated with autistic traits, empathy and Asperger Syndrome. *Autism Research*, online.

Source:

Genevieve Maul

University of Cambridge

from [www.medicalnewstoday.com](http://www.medicalnewstoday.com)

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