



HOME COMMUNITY NEWS VIDEO IMAGES SPACE SCIENCE TECH HEALTH EDUCATION FUN SHOP SITEMAP SEARCH

Space Science Technology Health General Sci-fi & Gaming Oddities International Business Politics Education Entertainment Sports

E-mail Print Comment Font Size Digg del.icio.us Discuss article Buzz up! Stumble It!

Damage To The Frontal Cortex Of The Brain Affects Our Ability To React Quickly To A Stimulus

Posted on: Tuesday, 15 June 2010, 15:59 CDT

Researchers of the University of Granada have demonstrated that patients who have damage to the right prefrontal cortex of the brain present a deficit in intentional anticipation (for example, when we put the vehicle in gear before the traffic light turns green). The findings of this study were published in the prestigious journal Brain.

Researchers of the University of Granada have demonstrated that patients who have damage to the right prefrontal cortex of the brain –the part involved in anticipation and quick reaction to stimuli– present a deficit in intentional anticipation (for example, when we put the vehicle in gear before the light turns green). However, these patients keep unintentional anticipation functions intact, which could help develop new therapies.

This study was published in the last issue of the prestigious journal Brain, and was led by Mónica Triviño (Department of Neuropsychology, University Hospital San Rafael, in Granada) and Ángel Correa, Marisa Arnedo and Juan Lupiáñez (Department of Experimental Psychology and Behavioural Physiology, University of Granada).

What is important about the study is that the researchers of the University of Granada have studied for the first time the neural basis in temporal preparation in patients and its connection to other two effects: the reaction-stimulus interval effect, and sequential effects. To this purpose, patients who had prefrontal damage, patients with injuries to basal ganglia circuits and healthy individuals underwent an experimental test.

Methodology
Patients were shown a sign that anticipated a stimulus to which a reaction was expected. The sign did not always anticipate correctly the stimulus, since it sometimes was shown too early or too late. Consequently, there were valid tests (the stimulus appeared just after the sign) and invalid tests (the sign and the stimulus were not synchronized, since the sign was shown too early or too late).

The results showed clear evidence that patients with right prefrontal damage presented deficient temporal preparation, while the other patients (those with damage to the left frontal cortex and to the basal ganglia) obtained the same results as healthy individuals.

As regards the response-stimulus interval, the researchers found that patients with prefrontal damage presented deficient preparation effects, while patients with damaged basal ganglia circuits showed normal effects. Finally, none of the groups –not even frontal-damage related patients– showed any altered sequential reaction.

At present, the authors of this study are analysing the relation between deficit in intentional preparation during reaction time foreperiods exhibited by prefrontal damage-related patients and their precipitation when it comes to react to a stimulus. Within their therapeutical application, researchers are analysing in what measure patients provided with rhythms (that is, basing on unintentional responses) this type of patients can improve their temporal preparation.

On the Net:

[Universidad de Granada](#)
[Brain](#)

[More News in this Category](#)

Related Articles

[Everybody Laughs, Everybody Cries: Researchers Identify Universal Emotions](#)
Groundbreaking Study by Dr. Robert Melillo and Dr. Gerry Leisman, Offers New Hope for Parents of Children with Autism Spectrum Disorders, ADHD and Dyslexia. For The First Time, Researchers Propose a Universal Theory Of Autism; May Eventually Lead To Cure

[Groundbreaking Study by Dr. Robert Melillo and Dr. Gerry Leisman, Offers New Hope for Parents of Children with Autism Spectrum Disorders, ADHD and Dyslexia For The First Time, Researchers Propose a Universal Theory Of Autism; May Eventually Lead To Cure](#)

[MEDRAD Sponsors PET Research with University of Zurich](#)

[Fortum and Uppsala University Sign Cooperation Agreement](#)

[Veeco's BioScope II AFM Supports Cell Biology Research at University of Pennsylvania](#)

[Grantham University Signs Articulation Agreements With Four Liberal Arts Colleges](#)

[Cyberkinetics Neurotechnology Systems, Inc. And Brown University Sign Collaborative Research Agreement](#)

[Hofstra University Signs Music Download Licensing Deal](#)

[Targeted Molecular Diagnostics Announces New Collaboration With Researchers at University of Texas M.D. Anderson Cancer Center](#)



[Mars500 Video Diary 1](#)

Jun 19, 2010, 9:43 am

[Mars500 Video Diary 1](#)

Jun 19, 2010, 9:25 am

[Eating Chocolate Could Lower Cholesterol](#)

Jun 19, 2010, 9:18 am

[One in Five Teens Have Abused Prescription Drugs](#)

Jun 19, 2010, 9:08 am

[Hitachi's EMIEW Humanoid Robot](#)

Jun 19, 2010, 9:03 am

[Teens Are Smoking Incense to Get High](#)

Jun 19, 2010, 8:46 am

[Scientists Score Melanoma Breakthrough](#)

[More Videos](#)

Health Plans From \$50/mo.

Compare Low-Cost Health Plans Online. Blue Cross, Aetna and more.
www.healthinsurancesort.com

Mortgage Refinance 3.

25%

\$200,000 mortgage for \$699/month. See Lower Payment NOW - No SSN Req'd.
Refinance.LoanOffers.com

Melbourne First from \$999

R/T Air from Melbourne, 3 nts htl, 1/2 day guided city sights tour, all trfs and more!
www.qantasvacations.com/m...

Business On Main

Articles, Tools & Resources for Small Business, Connected by Sprint!
www.BusinessOnMain.com

Fiji Island Fun from \$1399

R/T Air from LA, 5 nts Sonaisali Island Resort, Daily Brkfst, Cruise, Welcome cocktail
www.travelscene.com/fiji

Related Videos

[New Drug Treats Nerve Damage with Patient's Own Genes](#)
[Nicotine and Heroin Have Similar Effects](#)
[Global Rail Innovation Center](#)
[Scientists Find New Treatment for Sun-Damaged Skin](#)
[Smoking Can Cause Brain](#)