**DAILY MAIL**

**Violent homes have the 'same effect on brains of children as combat does on soldiers'**

By [Ted Thornhill](http://www.dailymail.co.uk/home/search.html?s=&authornamef=Ted+Thornhill)  
**UPDATED:** 18:43, 5 December 2011

The brains of children are affected by family violence in the same way as combat affects soldiers, according to a study.

In both cases the brain becomes increasingly wary of potential threats.

For children, the changes may increase susceptibility to mental health problems, say experts from University College London (UCL) and the Anna Freud Centre.

Children who suffer abuse or witness domestic violence are known to be at greater risk of anxiety and depression in later life.

Scientists carried out magnetic resonance imaging brain scans on 20 London children with an average age of 12 who had been exposed to documented violence at home.

All had been referred to local social services.

While in the scanner, the children were shown pictures of male and female faces with sad, calm or angry expressions.

Their patterns of brain activity were compared with those of 23 matched children with no history of family violence.

The children exposed to violence responded in a distinct way to angry faces, the study found.

Their brains showed heightened activation in two regions associated with threat detection, the anterior insula and amygdala.

Previous research has shown a similar pattern in the brains of soldiers exposed to violence combat situations.

The scans suggest both combat veteran soldiers and children who witness violence tune their brains to be hyper-aware of environmental danger.

Lead author Dr Eamon McCrory, from UCL's Division of Psychology and Language Sciences, said: ‘We are only now beginning to understand how child abuse influences functioning of the brain's emotional systems.

This research is important because it provides our first clues as to how regions in the child's brain may adapt to early experiences of abuse in the home.

‘Enhanced reactivity to a biologically salient threat cue such as anger may represent an adaptive response for these children in the short term, helping keep them out of danger.

However, it may also constitute an underlying neurobiological risk factor increasing their vulnerability to later mental health problems, and particularly anxiety.

‘The next step for us is to try and understand how stable these changes are. Not every child exposed to family violence will go on to develop a mental health problem; many bounce back and lead successful lives.

We want to know much more about those mechanisms that help some children become resilient.’

The anterior insula and amygdala are both implicated in anxiety disorders, the researchers pointed out.

Professor Peter Fonagy, chief executive of the Anna Freud Centre and Professor of Psychology at UCL, said: ‘Dr McCrory's groundbreaking research has undoubtedly taken us an important step closer to understanding the devastation which exposing children to violence can leave in its wake.

His exciting findings confirm the traumatic effects these experiences have on brain development.

‘The report should energise clinicians and social workers to double their efforts to safeguard children from violence.

By helping us understand the consequences of maltreatment the findings also offer fresh inspiration for the development of effective treatment strategies to protect children from the consequences of maltreatment.’

The research was reported today in the journal Current Biology.

Metro (UK)

December 6, 2011 Tuesday   
Edition 1;   
Scotland

**MIND MAP: When** **children have [...];**MiniCOSM SCIENCE AND DISCOVERY IN BRIEF  
  
**SECTION:** NEWS; Pg. 27  
  
**LENGTH:** 46 words

MIND MAP: When children have been exposed to family abuse, their brains become 'tuned' for threats.

Such children show high activity in the anterior amygdala and insula.

The London University study is the first to use brain imaging to explore how abuse affects emotional growth.

**NEW SCIENTIST**

**Abused children's brains work like soldiers' do**

* 16:23 06 December 2011 by [**Andy Coghlan**](http://www.newscientist.com/search?rbauthors=Andy+Coghlan)
* Magazine issue [2842](http://www.newscientist.com/issue/2842). [**Subscribe and save**](http://subscribe.newscientist.com/bundles.aspx?prom=6005&term=1Y&intcmp=SUBS-nsarttop&promcode=6005)
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The brains of children from violent homes function like those of soldiers when it comes to detecting threats.

[Eamon McCrory](http://www.ucl.ac.uk/psychlangsci/staff/cehp-staff/e_mccrory" \t "ns) at University College London used fMRI to scan the brains of 20 outwardly healthy children who had been maltreated and 23 "controls" from safe environments.

During the scans, the children, aged 12 on average, viewed a mixture of sad, neutral and angry faces.

When they saw angry faces, the maltreated children showed extra activity in the amygdala and the anterior insula, known to be involved in threat detection and anticipation of pain.

Combat soldiers show similar heightened activity (*[Current Biology](http://www.cell.com/current-biology/home" \t "ns)*, DOI: 10.1016/j.cub.2011.10.015).

"Our belief is that these changes could reflect neural adaption," says McCrory.

"Maltreated kids and active soldiers are adapting to survive in a threatening or dangerous environment."

Although this could help children survive their early years, it may predispose them to [mental health problems in adulthood](http://www.newscientist.com/article/dn9351-are-child-abuse-and-schizophrenia-linked.html), such as [depression](http://www.newscientist.com/article/dn13844-abuse-may-trigger-gene-changes-found-in-suicide-victims.html) or anxiety, says McCrory.

A related study, published this week by [Hilary Blumberg](http://www.yalemedicalgroup.org/YMG/directory/public/profile.asp?pictid=68491&department=G01082&physicianList=109077" \t "ns) of Yale University School of Medicine and colleagues, demonstrates that areas of the brain important for emotional processing are deficient in grey matter in adolescents who suffered from maltreatment as children (*[Archives of Pediatrics and Adolescent Medicine](http://www.newscientist.com/article/dx.doi.org/10.1001/archpediatrics.2011.565" \t "ns)*[, DOI: 10.1001/archpediatrics.2011.565](http://www.newscientist.com/article/dx.doi.org/10.1001/archpediatrics.2011.565" \t "ns)).

"The studies suggest that childhood maltreatment ‘gets into the brain', and becomes biologically embedded," says [Avshalom Caspi](http://www.moffittcaspi.com/" \t "ns), who studies mental health at Duke University in Durham, North Carolina.

**REUTERS**

**Study finds how child abuse changes the brain**

By Kate Kelland

LONDON | Mon Dec 5, 2011 5:03pm GMT

Children exposed to family violence show the same pattern of activity in their brains as soldiers exposed to combat, scientists said on Monday.

In a study in the journal Current Biology, researchers used brain scans to explore the impact of physical abuse or domestic violence on children's emotional development and found that exposure to it was linked to increased activity in two brain areas when children were shown pictures of angry faces.

Previous studies that scanned the brains of soldiers exposed to violent combat situations showed the same pattern of heightened activity in these two brain areas -- the anterior insula and the amygdala -- which experts say are associated with detecting potential threats.

This suggests that both maltreated children and soldiers may have adapted to become "hyper-aware" of danger in their environment, the researchers said.

"Enhanced reactivity to a...threat cue such as anger may represent an adaptive response for these children in the short term, helping keep them out of danger," said Eamon McCrory of Britain's University College London, who led the study.

But he added that such responses may also be underlying neurobiological risk factor which increases the children's susceptibility to later mental illness like depression.

Depression is already a major cause of mortality, disability, and economic burden worldwide and the World Health Organization predicts that by 2020, it will be the second leading contributor to the global burden of disease across all ages.

Childhood maltreatment is known to be one of the most potent environmental risk factors linked to later mental health problems such as anxiety disorders and depression.

A study published in August found that found that people who suffered maltreatment as children were twice as likely as those who had normal childhoods to develop persistent and recurrent depression, and less likely to respond well or quickly to treatment for their mental illness.

McCrory said still relatively little is known about how such early adversity "gets under the skin and increases a child's later vulnerability, even into adulthood."

In the study, 43 children had their brains scanned using functional magnetic resonance imaging (fMRI).

Twenty of the children who were known to have been exposed to violence at home were compared with 23 who had not experienced family violence.

The average age of the maltreated children was 12 years and they had all been referred to local social services in London.

When the children were in the scanner they were shown pictures of male and female faces showing sad, calm or angry expressions.

The researchers found that those who had been exposed to violence showed increased brain activity in the anterior insula and amygdala in response to the angry faces.

"We are only now beginning to understand how child abuse influences functioning of the brain's emotional systems," McCrory said.

"This research...provides our first clues as to how regions in the child's brain may adapt to early experiences of abuse."

The Mirror

December 6, 2011 Tuesday   
3 Star Edition

**BRAIN RISK OF BEATEN KIDS;**ABUSE  
  
**SECTION:** NEWS; Pg. 27  
  
**LENGTH:** 47 words

CHILDREN beaten at home show the same brain changes as war veterans.

Scans revealed abused youngsters became more "tuned" to danger but they were also more likely to suffer depression.

Prof Peter Fonargy, of University College London, said the study in journal Cell Press was "exciting".

The Sun (England)

December 6, 2011 Tuesday   
Edition 2;   
National Edition

**Abuse is 'like war'**  
**SECTION:** NEWS; Pg. 17  
  
**LENGTH:** 68 words

FAMILY violence has a similar effect on kids' brains as combat does on soldiers, a study found.

In both cases, the brain becomes on guard for threats.

And children who suffer or witness abuse are at greater risk of mental illness in later life.

University College London experts tested brain activity in abused 12-yearolds.

Dr Eamon McCrory said: "We are only beginning to understand how it influences the emotions."