

Scars of child abuse reach down to genetic level, scientists find

[CBC News](#)

Child abuse early in life appears to permanently change how people respond to stress, say researchers in Montreal who studied the brains of suicide victims.

The team of scientists found early child abuse changed the expression of a gene that is important for responding to stress.

For the study, Prof. Michael Meaney of McGill University and his colleagues examined the brain tissue of 36 males in Quebec.

'Maybe we can create different interventions, say in adolescents, that will negate these negative impacts that have happened earlier.'— *Dr. Stan Kutcher*

Among the 36, 12 suffered severe childhood abuse, altering a gene that affects a person's response to trauma, the researchers reported in this week's issue of the journal *Nature Neuroscience*.

Those 12 were compared with the brains of 12 accident victims who had not been abused and 12 controls. The gene was not altered in either of these groups.

In a way, the researchers said, the men were programmed to be more vulnerable to overwhelming feelings of despair.

The study is the latest in the growing field of epigenetics: how our environment, including the social trauma or chemical substances, affects how our genes do their job and ultimately how they affect behaviour.

"The implications at this stage are you want to identify these people and then probably offer them some sort of intervention," said study co-author Moshe Szyf, an epigeneticist in McGill's department of pharmacology and therapeutics.

The goal, Szyf said, would be to find drugs that could reverse the changes, but researchers don't yet know how to do so.

"Maybe we can create different interventions, say in adolescents, that will negate these negative impacts that have happened earlier," said Dr. Stan Kutcher, a psychiatrist specializing in adolescent mental health at Dalhousie University in Halifax, who was not involved in the research.

"We don't know yet."

Like thermostat on high

Child abuse experts said the findings reinforce the importance of interventions to prevent abuse.

If children are abused early, they are flooded with stress-related hormones such as cortisol and adrenaline, said Louise Newman, a professor of perinatal and infant psychiatry at the University of Newcastle in Australia.

"This impacts directly on how the brain develops and the stress regulation mechanism. It becomes highly stressed so it's like setting the thermostat on high, setting up a system which regulates stress less efficiently," Newman said.

"Also it impacts on the area which controls feelings, so they're more likely to be highly stressed, have difficulties with anger and emotions, and be prone to self-harm, anxiety, suicide and depression."

It's not clear why some people overcome their past while others succumb to it.

Abuse survivor Glori Medrum, 35, of Edmonton, was eight when a relative began to sexually abuse her. By the time she was 12, the abuse was almost too much to bear, and she locked herself in a bathroom with a razor.

"Is it worth how this has made me feel, which was that nobody really cared about me?" she recalled.

Medrum said she was in "survival mode" then, and now her life is about living with no regrets.

A common narrative

At the Distress Centres of Toronto, childhood abuse is a common narrative among callers.

"I don't want people to feel that genetics is their destiny, that there is some hope available if we can understand why some people are able to manage," said Karen Letofsky of the centre.

The samples of tissue used in the study came from the Quebec Suicide Brain Bank, which houses the brains — donated by families for the purposes of research — of about 200 people who died from suicide or other causes.

The research was funded by the Canadian Institutes for Health Research and the U.S. National Institute of Child Health and Development.

With files from Canadian Press, Australian Broadcasting Corp.

