

## Neuroscience, mindfulness and resilience in school kids

For scientists the concept of psychological resilience began in the 1970s with studies of children who did fine – or even well in life – despite significant early adversity, such as poverty or family violence.

For a long time a person's level of resilience was thought to be inherited or acquired in early life. This idea was supported by the often-replicated statistics on what happens after a trauma: while most people bounce back to normal relatively quickly, and some even report feeling psychologically stronger afterwards than they did before, about 8 per cent develop post-traumatic stress disorder, according to US figures.

The degree to which someone bounces back, or does even better – his or her resilience – has a genetic component. But “genes are not destiny here,” says Professor Dennis Charney, Dean of the Icahn School of Medicine at Mount Sinai, New York City.

As well as investigating psychological attitudes and mental strategies linked to resilience, Charney and Yale professor Steven Southwick have probed the neurobiology behind it. People whose bodies respond rapidly to a threat – with a surge of the stress hormones adrenaline, noradrenaline and cortisol – but who then recover quickly seem to cope better with stressful situations and jobs, such as working in the special forces. [Could this drug make you mentally stronger?](#)

More resilient people also seem to be better at using the hormone dopamine – which has a role in the brain's reward system – to help keep them positive during stress. Charney's team, along with colleagues from the National Institutes of Health, studied a group of U.S. Special Forces soldiers. They found that the amount of activity in the reward systems of the soldiers' brains remained high when they lost money in an experimental game, unlike in the brains of regular civilian volunteers.

This suggests the system in resilient people's brains may be less affected by stress or adversity. Each of the soldiers' brains also featured a healthily large hippocampus (which as well as enabling the formation of new memories also helps regulate the release of the fight-or-flight hormone adrenalin) and a strongly active prefrontal cortex, the brain region dubbed ‘the seat of rational thinking’.

This in turn helps inhibit the amygdala, the part of the brain that processes negative emotions such as fear and anger, allowing the prefrontal cortex to come up with a sensible plan to cope with a threat.

**Read the full, original story:** [Secrets of the strong-minded](#)