Physiology of Fear—and its Antidote

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Brain References
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Gift of 4 Core Emotions
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Joy, anger, fear, and sadness can be seen on the face of the fetus—all emotions are positive and some are very protective.

Each is associated with a specific neuropeptide so only one can hold sway at a time—can rapidly alternate.

PET scans: Left hemisphere lights up when the brain registers **JOY**; Right hemisphere lights up when the brain registers **anger, fear, or sadness**.
Emotions connect your subconscious mind with your conscious mind and provide you with information to help you be aware of and manage specific types of situations.

Both your brain and body are part of the subconscious, faithfully recording and reporting chemical processes that enter our conscious awareness only as we recognize them as emotions.

—Candace B Pert PhD
When in the grip of a strong emotion you are in a biochemically-altered state (brain and body) —Candace B Pert PhD

Emotional processes operate at a much higher speed than thoughts and often bypass the mind’s linear reasoning process entirely —Joseph LeDoux

All emotions are positive—they are designed to get your attention by triggering physiological changes in your body and provide energy to take action (unfortunately the actions and behaviors related to emotions are often negative)
Fear is a signal that you are or may be in some type of danger—actual or imagined.

Without fear you may be unable to protect yourself or your loved ones adequately; imagined fear can create immobility; when unmanaged, fear can kill ideas, undermine confidence, escalate into phobias and/or immobilization, and ‘lock down’ critical thought in the prefrontal cortex.

‘Big fears’ for many – natural disasters, terrorism, airline travel, public speaking . . .
Any anger or fear shifts energy and attention from the neocortex to the reptilian brain

—Joseph Chilton Pearce

Potentially 100 x more connections between the R. hemisphere and the 2\textsuperscript{nd} layer

Downshifting results in a lack of easy access to executive functions in the neocortex, which can result in many undesirable consequences when maintained over time
Undesirable Consequences
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- Reduced recall (e.g., people tend to remember less than 15% of what was told to them during a crisis)

- Decrease in cognitive functions (e.g., learning, cause-effect reasoning, rational and logical thinking, planning, and problem-solving)

- Less able to engage in complex mental tasks (e.g., reduced creativity, reduced ability to take cues into consideration for decision-making)
Undesirable Consequences, Cont’d

- Fail to see interconnectedness
- Reactivate old learned beliefs and habits (may relapse into addictive behavior patterns—2nd brain layer) regardless of available information
- Activate phobias (2nd brain layer)
- Suppress the immune system (2nd brain layer)
- Accelerate the aging process
Quickly: How many boxes?
Stress can undermine both cognitive and emotional stability—the longer the brain remains stressed, the more perceptions of reality are altered. —Andrew Newberg MD & Mark Robert Waldman

Why We Believe What We Believe
Virtually anyone in conducive circumstances may be induced to perpetrate acts of extreme violence on creatures and human beings

—Research studies: Stanley Milgram, Philip Zimbardo

Joining and following a group—possibly to the point of violence—depends critically on two inter-related factors: identification with the cause and disidentification with those that are being harmed (viewing that as regrettable but necessary)

—Research studies: Henri Tajfel & John Turner
Internet Recruitment - Examples

1. Abuse victims – 70% of recruited girls are untreated rape victims

2. Those who are grieving the loss of a loved one – are promised an explosive belt so they can join them in paradise

3. Humanitarians – intentions are twisted into planning terrorist attacks

4. Personal issues (‘don’t fit in,’ disenfranchised)

—Anthropologist Dounia Bouzar
Terrorism is all about *polarizations*—reconfiguring intergroup relationships so that extreme leadership appears to offer the most sensible way of engaging with an extreme world.

It is a conscious strategy that involves their actions and our reactions. “Over-reaction is precisely the wrong response to terrorism. And it’s exactly what terrorists want… It does the work of the terrorists for the terrorists.”

—David Rothkopf, editor *Foreign Policy* after the Paris Massacres, Nov 2015
1. Isolate them from their social environment—mix fact with fiction so they start to doubt

2. Indoctrinate them that only true Islam can renew and awaken them

3. Discourage them from associating with anyone who thinks differently from Islam

3. Dehumanize them by teaching that non-followers are not really human so killing them is not a crime; it is even a duty

—Anthropologist Dounia Bouzar
The human brain always preserves traces of past feelings that can surface at unexpected moments;

Rekindling an emotional connection with family (pictures, remembering fun events) to promote resensitization—not attempting to address the radicalization with rational arguments

Resensitization may result in the recruit being willing to attend a support group—which may trigger the recovery process

—Anthropologist Dounia Bouzar
1970-2015: 150,000 Terrorist Events were reported

2015: 11,774 terrorist attacks were reported worldwide, in which more than 28,300 people died and roughly 35,300 others were wounded

More than 55% of attacks attributed to terrorists occurred in 5 countries: Iraq, Pakistan, India, Afghanistan and Nigeria

Terrorist attacks fell by 13% compared with 2014; terrorist-activity fatalities declined by 14% —US State Department, Global Terrorism Data Base
Fear and gratitude cannot co-exist simultaneously in the brain; gratitude, part of joy, is the only emotion with no negative consequences when maintained over time.

- *Give thanks in all circumstances* —Apostle Paul
- *The more you give thanks, the more for which your brain finds to give thanks* —Arlene R. Taylor
- *Gratitude is a vaccine, an antitoxin, and an antiseptic* —John Henry Jowett
Metaphorically, you and one core emotion at a time are on the stage of your brain from birth to death.

When one core emotion is on stage the other three wait in the wings until something triggers one of them to come on stage, which pushes the other off.

Identify what fear is telling you, take appropriate action if any is needed, then give thanks for something, which brings joy out on stage again and pushes fear off state and back into the wings.
Dr. Moser, a neuroscientist at Michigan State ‘U’ showed two groups of women pictures of a masked man holding a knife to a woman’s throat.

One group were chronic worriers, the other group were not.

He asked the women to imagine a positive outcome through self-talk while he measured electrical activity in their brain’s frontal cortex and in the limbic system.
Electrical activity in the frontal cortex and limbic system increased when women used ‘I’ and ‘me’ in their self-talk, and they had to work harder to talk themselves into a positive view—even then, they failed to calm themselves down.

The harder their frontal lobes worked, the more anxious their limbic brain became; the task pitched them into a vicious circle of rumination, anxiety, and more rumination.
The same women were asked to repeat the self-talk exercise, only this time deliberately using their first names and the pronoun *you*. They reported a dramatic reduction in subjective anxiety levels.

The electrodes documented a vast reduction in energy consumed by the frontal lobes (3rd brain layer); and the activity of the amygdala (2nd brain layer) quieted down, as well, its activity reduced by just about half.
Be anxious about nothing —Apostle Paul

There is nothing to fear but fear itself —President Franklin D. Roosevelt

Feel the fear and do it anyway —Susan Jeffers

You have a choice: become immobilized by fear or develop the skills to manage it appropriately, use gratitude to upshift as needed, use the new self-talk style, and live life to its fullness—and it all starts in your brain