- Anger / Emotions

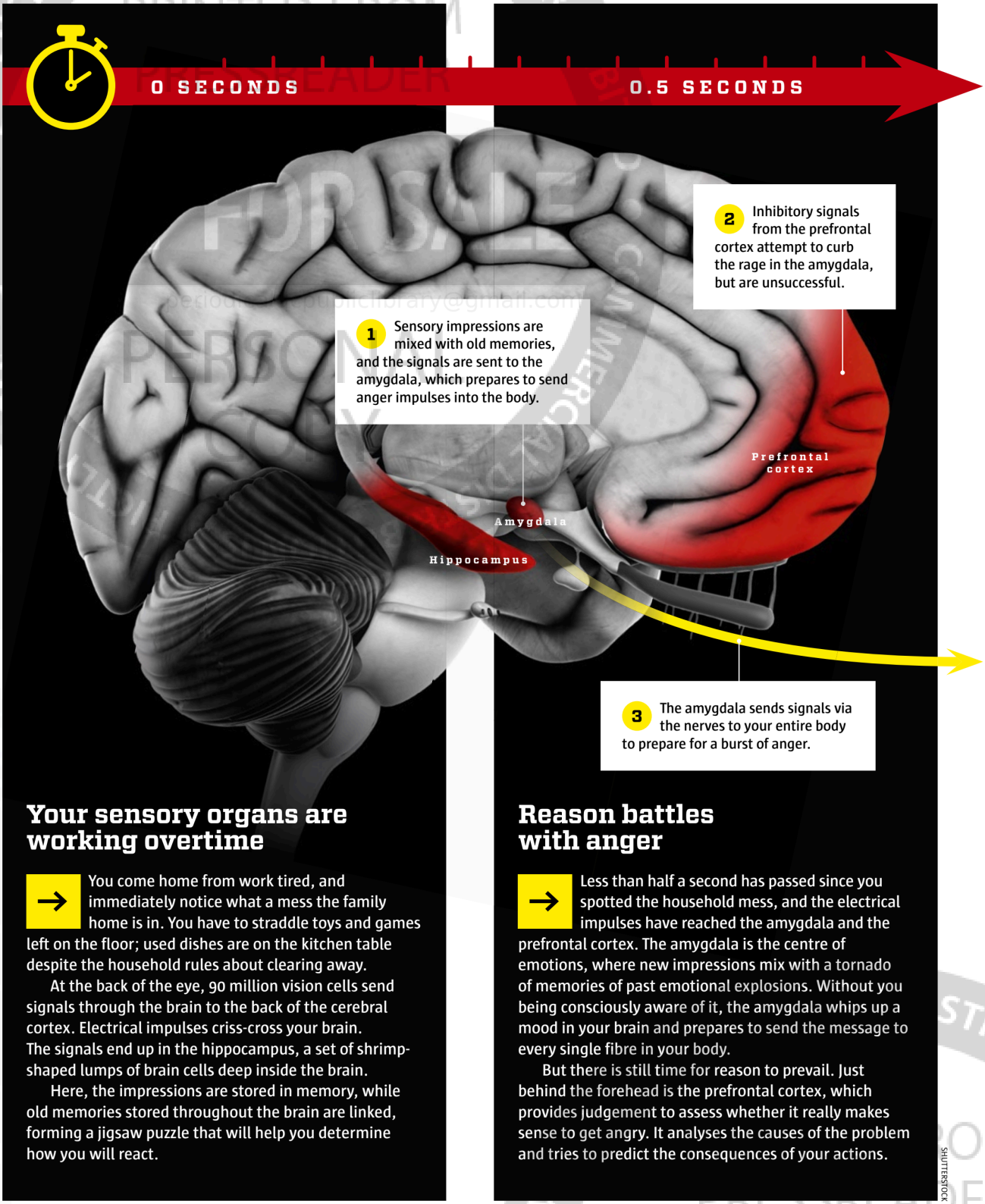


We are all two seconds from ANGER!

Even the most inoffensive people you meet are ticking time-bombs. Our brains remain less than two seconds away from exploding in anger. But once you know the path of anger, from brain to muscles, you may learn how to avoid the explosion.

SHUTTERSTOCK

By **Andreas Andersen**



Your sensory organs are working overtime

You come home from work tired, and immediately notice what a mess the family home is in. You have to straddle toys and games left on the floor; used dishes are on the kitchen table despite the household rules about clearing away.

At the back of the eye, 90 million vision cells send signals through the brain to the back of the cerebral cortex. Electrical impulses criss-cross your brain. The signals end up in the hippocampus, a set of shrimp-shaped lumps of brain cells deep inside the brain.

Here, the impressions are stored in memory, while old memories stored throughout the brain are linked, forming a jigsaw puzzle that will help you determine how you will react.

Reason battles with anger

Less than half a second has passed since you spotted the household mess, and the electrical impulses have reached the amygdala and the prefrontal cortex. The amygdala is the centre of emotions, where new impressions mix with a tornado of memories of past emotional explosions. Without you being consciously aware of it, the amygdala whips up a mood in your brain and prepares to send the message to every single fibre in your body.

But there is still time for reason to prevail. Just behind the forehead is the prefrontal cortex, which provides judgement to assess whether it really makes sense to get angry. It analyses the causes of the problem and tries to predict the consequences of your actions.

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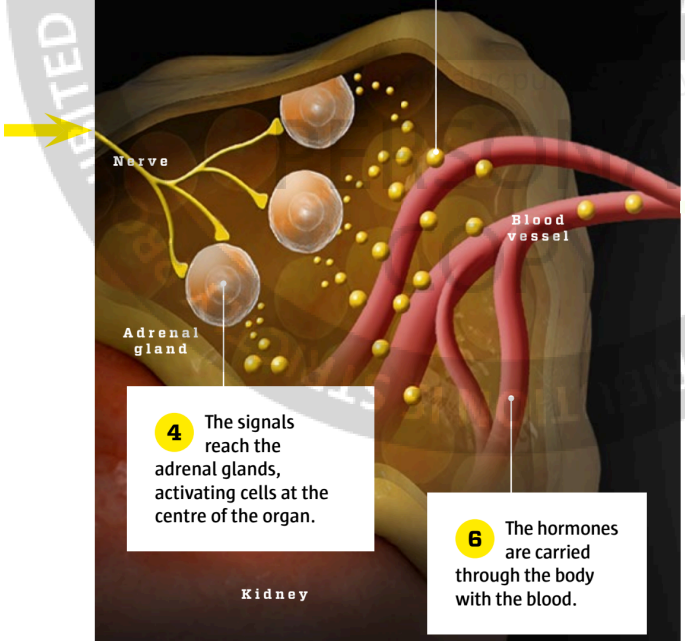
1 SECOND

5 The active cells start releasing adrenaline into the blood vessels.



4 The signals reach the adrenal glands, activating cells at the centre of the organ.

6 The hormones are carried through the body with the blood.

Anger spreads to the body

The countless memories of past frustration feed the fire in the amygdala and make the centre of reason lean towards a stormy offensive.

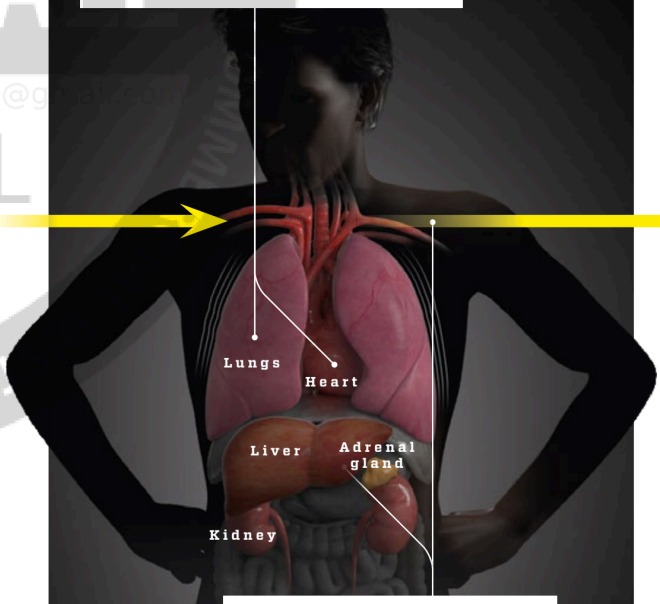
Anger takes over the brain. Nothing stands in the way of the amygdala, which sends a shower of signals through the spinal cord and out to all parts of the body.

Among the main recipients are the adrenal glands, the key anger distribution centre located at the top of the kidneys. These glands contain cells that are activated by the amygdala's impulses and immediately start pumping adrenaline into the bloodstream.

CLAUS LUNAU

1.5 SECONDS

7 Together with signals from the brain, adrenaline makes the heart rate increase and the lungs work faster.



8 When adrenaline binds to receptors in the liver, liver cells release sugar into the blood.

Adrenaline prepares the body for battle

A deluge of signals from the amygdala, amplified by the adrenaline in your veins, floods your organs. Sweat glands start secreting fluid to the surface of your skin, while the muscles around your blood vessels change the distribution of blood in your body.

The finely-tuned clockwork of electrical impulses that subconsciously control your cardiac rhythm increases the frequency. At the same time, your lungs take in more oxygen, and muscles all over your body are told to get ready for battle. In the liver, adrenaline causes cells to cut into their sugar stores and send extra energy into the bloodstream.

All of this serves one purpose: to give you the maximum energy to explode.

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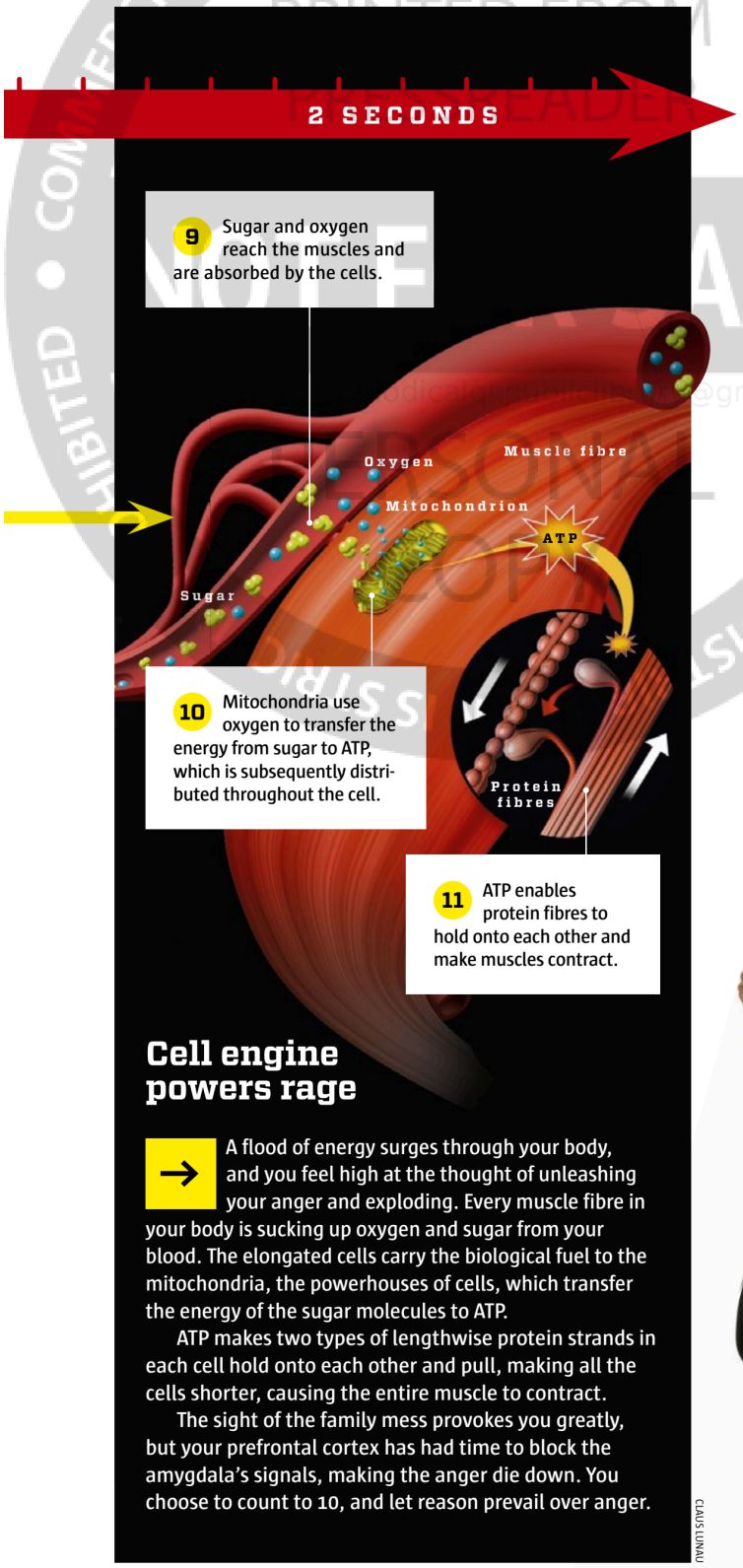

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Cell engine powers rage

A flood of energy surges through your body, and you feel high at the thought of unleashing your anger and exploding. Every muscle fibre in your body is sucking up oxygen and sugar from your blood. The elongated cells carry the biological fuel to the mitochondria, the powerhouses of cells, which transfer the energy of the sugar molecules to ATP.

ATP makes two types of lengthwise protein strands in each cell hold onto each other and pull, making all the cells shorter, causing the entire muscle to contract.

The sight of the family mess provokes you greatly, but your prefrontal cortex has had time to block the amygdala's signals, making the anger die down. You choose to count to 10, and let reason prevail over anger.

Anger makes you successful in life

Excessive anger is harmful, but researchers have shown that you should not always suppress it.

Anger may make you more satisfied

In a large study, researchers from Harvard University in the US asked a group of people how they managed their anger and whether they felt satisfied with their personal and professional lives. The results showed that the people who were best at unleashing their anger were also the most satisfied with their lives.

Anger could help you make decisions

In another study, test subjects were pressurised to get angry and then read a series of good and bad arguments. The angry subjects proved to be better at recognising the bad arguments.

Anger beats your fear

Studies have shown that it helps to get angry if you are afraid. Angry people are more willing to take risks, and more optimistic about the probable outcome of the situation.



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