Attention Regulates Emotion: Focus and Self-Control

Executive attention holds the key to self-management.
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When my sons were just two or so and would get upset, I sometimes used distraction to calm them down: "*Look at that birdie*," or an all-service, enthusiastic "*What's that?*" with my gaze or finger directing their focus toward something else.

Attention regulates emotion. This little ploy uses selective attention to quiet the agitated amygdala. So long as a toddler stays tuned to some interesting object of focus, the distress calms; the moment that thing loses its fascination, the distress, if still held on to by networks in the amygdala, comes roaring back. The trick, of course, lies in keeping the baby intrigued long enough for the amygdala to calm.

As infants learn to use this attention maneuver for themselves, they acquire one of their first emotional self-regulation skills—one that has vast importance for their destiny in life: how to manage the unruly amygdala. Such a ploy takes executive attention, a capacity that starts to flower in the third year of life when a toddler can show "effortful control"—focusing at will, ignoring distractions, and inhibiting impulse.

Parents might notice this landmark when a toddler makes the intentional choice to say "no" to a temptation, like waiting for dessert until after she's taken some more bites of what's on her plate. That, too, depends on executive attention, which blossoms into willpower and self-discipline—as in managing our disturbing feelings and ignoring whims so we can stay focused on a goal.

By age eight most children master greater degrees of executive attention. This mental tool manages the operation of other brain networks for cognitive skills like learning to read and do math, and academics in general.

Our mind deploys self-awareness to keep everything we do on track: meta-cognition—thinking about thinking—lets us know how our mental operations are going and adjust them as needed; meta-emotion does the same with regulating the flow of feeling and impulse. In the mind's design, self-awareness is built into regulating our own emotions, as well as sensing what others feel.

Neuroscientists see self-control through the lens of the brain zones underlying executive function, which manages mental skills like self-awareness and self-regulation, critical for navigating our lives.

Executive attention holds the key to self-management. This power to direct our focus onto one thing and ignore others lets us bring to mind our waistline when we spot those quarts of Cheesecake Brownie ice cream in the freezer. This small choice point harbors the core of willpower, the essence of self-regulation.

The brain is the last organ of the body to mature anatomically, continuing to grow and shape itself into our twenties—and the networks for attention are like an organ that develops in parallel with the brain.

As every parent of more than one child knows, from day one each baby differs: one is more alert, or calmer, or more active than another. Such differences in temperament reflect the maturation and genetics of various brain networks.

How much of our talent for attention comes from our genes? It depends. Different attention systems, it turns out, have different degrees of heritability. The strongest heritability is for executive control.

Even so, building this vital skill depends to a large extent on what we learn in life. Epigenetics, the science of how our environment affects our genes, tells us that inheriting a set of genes is not in itself enough for them to matter. Genes have what amounts to a biochemical on/off switch; if they are never turned on we may as well not have them. The “on” switch comes in many forms, including what we eat, the dance of chemical reactions within the body, and what we learn.