

Feel overwhelmed? This is why.

by Kim Dawson

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Too busy? Too much to worry about? Well, you're not alone! Count yourself among most people in today's society. Why is feeling overwhelmed so common? There is a really good explanation for this. Nobel prize-winning scientist Gerald Edelman calls it "the jungle in the head".

The adult human brain weighs about 3 pounds and contains about 100 billion nerve cells, or neurons. These cells carry information to each other much like insulated wires in our houses. But the difference from home-wiring is that neurons form networks so vast that it would take more than 32 million years to count their connections. And that isn't even the whole brain! That estimate only includes the most developed part of the human brain called the "cerebral cortex".

Edelman estimates the number of connections (also called "synapses") between the 30 billion neurons in the cerebral cortex at approximately one trillion. In our everyday thinking, these numbers are so large that they are staggering beyond belief! But microbiological studies of the brain have shown them to be true. With so much going on between our ears, it's no wonder we feel overwhelmed once in a while!

But why don't we feel overwhelmed all the time? Well, some of my clients do. In their situations, their brains have been on hyperdrive for so long that, if their life were to suddenly calm down, I'm not sure they wouldn't look for more stress to make themselves overwhelmed again. This opinion is based on a principle that governs how the brain works. When the brain gets accustomed to a certain level of stimulation, it is programmed to maintain it. In its absence, the brain will seek out the level of stimulation it was accustomed to. For example, about 50 years ago, infant monkeys were removed from their mothers (cruel, I know). Then they were given either a wire-mesh skeleton figure or a similar figure wrapped with terry-cloth towels. Guess which figure the infant monkeys preferred to cuddle. That's right! The one most like their mothers.

Further research has shown that the more we perform a certain kind of behaviour, the more likely we are to keep doing things that look a lot like what we did before. The opposite is also true. The less we do certain things, the less likely we are to do those things. This is the "use it or lose it" principle. As Edelman says in his book *A Universe of Consciousness*, "Neurons strengthen and weaken their connections according to their individual patterns of electrical activity." This provides the brain with a way of selecting among the incredibly vast array of billions and billions of possible alternatives available at any given time. This ability to select – which many of my clients hope to recover – reduces the stress, anxiety, or even panic that we feel when we are overwhelmed with too much information all at once.

Over the next three weeks, perspectives will be offered about common issues encountered during childhood, adolescence and adulthood. Beginning next week, these issues are 1. aggression in childhood; 2. experimentation in adolescence; and, 3. aging successfully. It turns out that the brain can help us understanding these complex stages of life.

But first, let's begin our trek through the lifespan by looking at how selection occurs during early development before birth and later during infancy. During the early development of the brain, the structure of the brain is determined by genes and inheritance (i.e., by chemicals and prenatal experience passed on to us by our parents). From as early as 2 months into pregnancy, neurons extend thousands of branches in many directions. This creates an incredibly diverse collection of neural circuits, already laying the foundation for a multiplicity of sensations, movements, feelings, and behaviours. Neurons in particular brain circuits carry certain kinds of information (about sensations like seeing, hearing, touch, taste, and smell) while other circuits carry other kinds of information (like movements and emotions).

By branching out in this way, the brain seeks out new information, so that it can adapt and learn in response to a changing environment. But it also tries to minimize the difference of this new information so it isn't too overwhelming. It does this so that it can be fit into already established neural maps of the world with as little energy as possible being used to accommodate the new information. Cost-savings!

Because of its importance for the development of attachment between parent and infant, let's take the sensation of touch as an example. I already mentioned the importance of touch in early studies of rhesus monkeys and their preference for towed models of their mothers. More recent research has shown that infants born prematurely show increased weight and survival rate when they receive regular daily massage. It is also known that the brain has the capacity to select among experiences based on the results of experiences themselves. For example, development of brain wiring mapping the fingers depend on the amount each finger is touched. These changes occur because connections (or synapses) are strengthened if the finger is touched more often. It is weakened when it is touched less often.

This research is playing a large role in our present-day understanding of infant mental health. These studies add to knowledge already available in the '70s when it was noted that the more responsive and appropriate parents are to demonstrations of distress or happiness by their babies, the more successful and resilient these infants will turn out to be. Among experts, there is now general consensus that there is a critical period, spanning the last trimester of pregnancy to the second year following birth, during which – in contrast to abuse, neglect, or overindulgence – an attentive and nurturing attachment between parent and infant is key to ongoing healthy brain development.

In summary, the brain is so immensely complicated that its capacity to process billions of bytes can easily overwhelm our daily assumption of “one thought at a time”. But infant brains have not yet learned to sequence their thoughts in this way. The experience needed to form the neural wiring for doing things “one at a time” relies entirely on the caregiver's already overwhelmed brain to continue to help the infant survive in spite of the exhaustion this task requires. By example then, and the use of neural circuits that observe this parental response, the infant brain learns to survive in spite of its own overwhelmed nature.

Today's article has introduced how the brain functions and the important role the primary caregiver plays in supporting the development of the infant brain. More information about the way in which intimate communication between infant and caregiver can be found at your local Child Development Centre (www.fvcdc.org).

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