

Nature or Nurture? A Q&A on Epigenetics and Mental Health with Dr. Jennifer Dragonette

From the website of the North Eastern US teen treatment centre, 'Newport Academy' - https://www.newportacademy.com/resources/expert-qa/epigenetics/?utm_source=mailchimp&utm_medium=email&utm_campaign=11_19_resources_epigenetics&utm_content=1st_cta



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Epigenetics is a new and ground-breaking concept in the field of psychology and mental health. Research is revealing that our genes can actually turn on or turn off in response to what happens in our life and how our environment affects us.

This understanding has finally put to bed the age-old debate regarding nature vs. nurture—in other words, whether who we are is determined by our genetic makeup or by our life experiences. Epigenetics makes it clear that they work in tandem to impact both physical and mental health.

Newport Academy Executive Director **Dr. Jennifer B. Dragonette, PsyD**, who spearheaded the establishment of our Northern California location in 2018, is fascinated by this topic and how it influences teen and young adult mental health. In this Q&A, she explains the concept of epigenetics, how it impacts teen and young adult mental health, and the treatment modalities that can help heal childhood trauma.



***How do childhood experiences impact us physiologically?
And how extreme do those experiences have to be in order
to turn our genes on and off?***

Most of us can remember an unhappy or stressful incident in our childhood, but that's very different from experiencing chronic trauma and stress. Trauma and **PTSD** are categorized as either simple or complex. Simple trauma is typically related to a specific, significant event, such as natural disaster or a car accident. Complex trauma is chronic and pervasive, and it's this kind of ongoing stress that impacts individuals both physically and psychologically for the rest of their lives. When kids grow up in an environment where they are exposed on a regular basis to what they perceive as a threat, their nervous system is perennially in a state of fight-flight-or-freeze.

This reaction, which is activated by the sympathetic nervous system, evolved to get us out of dangerous situations. Humans are not made to be in a constant state of stress. When we go into that state, the body releases the stress hormones adrenaline and cortisol, which allow us to react more quickly to danger. But when the sympathetic nervous system is always on, the body becomes overloaded and overtaxed, and its ability to regulate by returning to the parasympathetic (rest-and-digest) state essentially stops working.

Therefore, toxic neurochemicals are constantly flowing through the organs, and that actually changes the cells in our brain and body and affects what's known as gene expression—the way our genes express themselves through

physiological and psychological symptoms, such as depression or disease. In fact, researchers suspect that trauma and **stress** may even impact our DNA, meaning that we can pass on these epigenetic changes to our children.

This field certainly calls into question the nature or nurture debate. It is clearly both: We are born with biological predeterminants, but our lives impact our genomes as we grow, and thus our genes will express themselves differently based on what we experience.

Could you share some of the research that's been done on epigenetics?

The **ACE Study** in 1998 was pivotal. That study and **subsequent studies** looked at the way an individual's Adverse Childhood Experiences (ACEs) impact their health. We had understood the link between childhood experiences and mental health prior to this research—we knew that people who had undergone child abuse were more prone to depression. But the ACE study showed that individuals with high levels of negative experiences as children were also prone to heart disease, cancer, and chronic bronchitis, among other diseases.

We can understand that to some degree from a behavioral perspective—for example, people who had traumatic childhoods are more likely to drink or use drugs as forms of self-medication, and they may be less likely to exercise and otherwise take care of themselves due to lack of self-esteem. And these behaviors can lead to disease. But one of the striking things about the ACE Study was that researchers found that even when individuals with high levels of adverse childhood experiences did *not* have poor health behaviors, such as drinking and smoking, their risk for disease was still higher. Something had changed in their physiological makeup that was increasing their risk.

How do researchers and clinicians measure an individual's level of adverse childhood experiences?

The ACE Study researchers developed what's known as the **ACE questionnaire**. It includes 10 questions that identify areas of **childhood trauma** that occurred prior to age 18, including physical abuse, emotional neglect, a parent with a mental health disorder or addiction, etc. These are questions that some clients who have struggled with mental health issues their whole lives have sometimes never been asked. I've had patients in their 50s or 60s say to me, "I wished someone had asked me this earlier." Often people with a history of trauma—especially childhood trauma that happened before

they could understand it—have the sense that there is something fundamentally wrong with them. The ACE test helps them understand that it's not about what's wrong with them, but rather what happened to them, and why their life unfolded the way it did.

It's also incredibly helpful for clinicians to understand how certain types of childhood trauma may be affecting a patient in the present. For example, it makes sense that someone who was hurt or humiliated by a family member early in life—just at the time when they were establishing their expectations of how they were going to be treated in the world—would have trouble trusting others and maintaining healthy relationships as they get older. The ACE questionnaire gives us information that's relevant from both psychological and environmental standpoints with the teen and young adult clients we serve at Newport Academy.



Is it possible to counteract the long-term physiological changes triggered by trauma?

Yes, experts believe that it is, but to what extent is unclear. There are certain windows of opportunity when the brain and genetics are more vulnerable to being impacted—critical periods during brain and body development. As we get older, those windows close, and our psychological and physical patterns become more established.

That said, there are many treatment modalities that work at various levels to counteract the negative imprints of childhood trauma. One typical result of childhood trauma is disruption of the parent-child relationship, resulting in **attachment issues that affect relationships** later in life. It is possible to achieve what we call “earned secure attachment”—strong relationships in which you trust that the other person is there for you, no matter what.

Teens and young adults in particular have great capacity for change and growth because **their brains are not yet fully developed**. That’s why the understanding of epigenetics and ACEs is so relevant to our work at Newport Academy. There are a wide range of clinical approaches for treating trauma, which allows us to tailor treatment to each client’s unique history and temperament.

What treatment modalities are typically used to address unresolved trauma?

Cognitive Behavioral Therapy (CBT) is very effective in helping people change unhelpful thought patterns—ideas they have about themselves that have been established by early experiences, such as *I’m fundamentally unlovable*. Acceptance and Commitment Therapy (ACT) teaches mindfulness skills that help people learn to observe and be with their feelings rather than pushing them away by suppressing them or self-medicating.

Seeking Safety is a modality that was created to be facilitated not only by clinicians but also by healthcare providers and care coordinators. It’s generally done in a group context and works around themes of addiction and trauma at the same time. For many people, an early history of childhood trauma has led to overusing substances or other addictions. Seeking Safety addresses that cycle of addiction and trauma.

EMDR (Eye Movement Desensitization and Reprocessing) has been shown to be effective in treating trauma by using very specific brain-stimulation exercises while people walk through traumatic events from the past.

At Newport Academy, we also use **Attachment-Based Family Therapy (ABFT)** to address childhood trauma. Whether or not parents were the direct cause of the trauma, by the time they get to us, teens and young adults have gotten into patterns where they are no longer reaching out to their parents for support. We work with the child and their parents to rebuild that relationship so parents can serve as a loving resource as children navigate mental health challenges.



What does a day in the life at Newport look like regarding those modalities?

Every client at Newport Academy has a tailored treatment plan that includes a blend of evidence-based modalities; experiential therapies, such as art therapy and Adventure Therapy; and mindfulness practices, like yoga and meditation. This allows us to address trauma at various levels—impacting the conscious mind through therapies like ACT and CBT; repairing relationships with ABFT; creating positive changes in the body and brain with somatic practices like EMDR and yoga; and healing the emotional self through self-expression in experiential therapy. In addition, we use nutrition as a healing tool, recognizing that the meal is medicine and what we put in our bodies also affects our gene expression.

Bottom line: No matter what happened to you in childhood, your life is not set in stone. You have the opportunity to become the person you want to be.

Sources:

Health Behavior Research. 2019;2(1).

Am J Prev Med. 1998 May;14(4):245–58.

Am J Prev Med. 1998 May;14(4):356–60.