

# Legacy and Lifestyle: Epigenetics and the Potential for Chiropractic

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There weren't many exciting days in my high-school biology class. The class was interesting, though, and we had an excellent teacher. One day stands out in my memory. The excitement in the teacher's voice was contagious. He brought forth a model from the back room and carried it to the demonstration table in the front of the lab. We were told the story of Watson and Crick's work on the double helix - DNA - and that it was the "blueprint of life."

Our teacher could hardly contain his enthusiasm for sharing the secret of life with us, describing how the sequencing of the pyrimidines cytosine and thymine, and the purines adenine and guanine, encoded our identities and our futures. This was cutting-edge stuff in the '60s, and we were mesmerized.

The "dogma of genetic supremacy" followed me from high school to college and then professional school. Even in chiropractic classes, it was suggested that the "limitations of matter" were defined by our genetic legacy. But there was something brewing shortly after I left my teaching position at Palmer in 1979. Guy Riekeman and Joe Flesia held a symposium at which I first heard the term *epigenetic*. The environment, we were taught, determined gene expression. The speaker was Ron Pero, PhD. Little did I suspect that one day I would co-author [a paper](#) with him on DNA repair and chiropractic care.<sup>1</sup>

Fast-forward 25 years or so to an interview with [Bruce Lipton, PhD](#), for the "On Purpose" audio series. Bruce had the same zeal for his message as my high-school biology teacher. But like Pero, his message was very different: "It is now recognized that the environment, and more specifically, our perception (interpretation) of the environment, directly controls the activity of our genes.

Environment controls gene activity through a process known as epigenetic control."<sup>2</sup>

The significance of this hit me squarely between the eyes. We are not slaves to our DNA. Our environment controls the activity of our genes. Our interpretation of the environment determines how our genes express themselves, and we can direct our interpretation of life's events. In short, we are not slaves to biochemical caprice. As sentient beings, we sculpt our biology.

A growing body of scientific literature addresses how lifestyle choices affect gene expression.

[Sanchis-Gomar, et al.](#),<sup>3</sup> observed that *eu-stress*, or positive stress, is an effector for gene expression. "We propose herein that stress may stimulate genetic adaptations through epigenetics that, in turn, modulate the link between the environment, human lifestyle factors and genes ... How an individual physically adapts to the prevailing environmental conditions might influence epigenetic mechanisms and modulate gene expression." The authors also note, "Physical exercise positively influences epigenetic mechanisms and improves health."

A broad array of lifestyle factors affects epigenetic mechanisms. According to [Alegría-Torres, et al.](#),<sup>4</sup> "The concept of 'lifestyle' includes different factors such as nutrition, behavior, stress, physical

activity, working habits, smoking and alcohol consumption. Increasing evidence shows that environmental and lifestyle factors may influence epigenetic mechanisms, such as DNA methylation, histone acetylation and miRNA expression. It has been identified that several lifestyle factors such as diet, obesity, physical activity, tobacco smoking, alcohol consumption, environmental pollutants, psychological stress and working on night shifts might modify epigenetic patterns."

Other authors have addressed the interplay of early-life [nutritional programming](#) on obesity, inflammation and epigenetic outcomes,<sup>5</sup> dietary and lifestyle factors of [DNA methylation](#),<sup>6</sup> genetic and environmental factors in the etiology of [depression](#)<sup>7</sup> and epigenetic aspects of [digestive diseases](#).<sup>8</sup>

Articles on epigenetics are also seen in the popular press. Medical physician [Dean Ornish](#) wrote in *Newsweek*,<sup>9</sup> "New research shows that improved diet, meditation and other non-medical interventions can actually 'turn off' the disease-promoting process in men with prostate cancer ...

Earlier this week, my colleagues and I published the [first study](#)<sup>10</sup> showing that improved nutrition, stress management techniques, walking, and psychosocial support actually changed the expression of over 500 genes in men with early-stage prostate cancer."

*Discover Magazine* featured an article whose title boldly proclaimed, "[DNA is Not Destiny](#)."<sup>11</sup> The author wrote, "A human liver cell contains the same DNA as a brain cell, yet somehow it knows to code only those proteins needed for the functioning of the liver. Those instructions are found not in the letters of the DNA itself but on it, in an array chemical markers and switches along the length of the double helix, known collectively as the epigenome, that lie along the length of the double helix . These epigenetic switches and markers in turn help switch on or off the expression of particular genes."

The take home-message is stunning: "Epigenetic signals from the environment can be passed on from one generation to the next, sometimes for several generations, without changing a single gene sequence ... Put simply, and as bizarre as it may sound, what you eat or smoke today could affect the health and behavior of your great-grandchildren ... Epigenetics is proving we have some responsibility for the integrity of our genome ... Before, genes predetermined outcomes. Now everything we do ... can affect our gene expression and that of future generations. Epigenetics introduces the concept of free will into our idea of genetics."

For the chiropractor, correction of nerve interference takes on a deeper significance. Subluxation distorts our perception of the environment, and compromises our ability to respond to it. As every DC knows, following an adjustment, patients frequently report a heightened state of perceptual awareness and well-being. Quite simply, correcting interference may well affect not only the genetic expression of the patient, but also the bodies and brains of their progeny.

We now know that there are two ways that correction of [vertebral subluxations](#) may affect genetic mechanisms:

- Chiropractic care could influence basic physiological processes affecting oxidative stress and DNA repair.
- Correction of vertebral subluxations may change a person's perception of the environment and facilitate constructive, appropriate responses to environmental change.

This knowledge positions the chiropractor as a facilitator in determining the legacy of humanity.

That's the power you hold in the very hollow of your hands.

## References

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