

What is Genetic Medicine?

The meaning of Genetic Medicine is changing rapidly as we make major scientific advances in the field of medicine. Traditionally, Genetic Medicine is used to describe the study of genetic mutations that are responsible for serious disease which often manifest in childhood and cause an early death.

The definition of Genetic Medicine has changed with the completion of the Human Genome Project and the ability for the first time in human history for anyone to have his or her entire genome tested. We're just beginning to understand the implications of the huge amount of information this provides us.

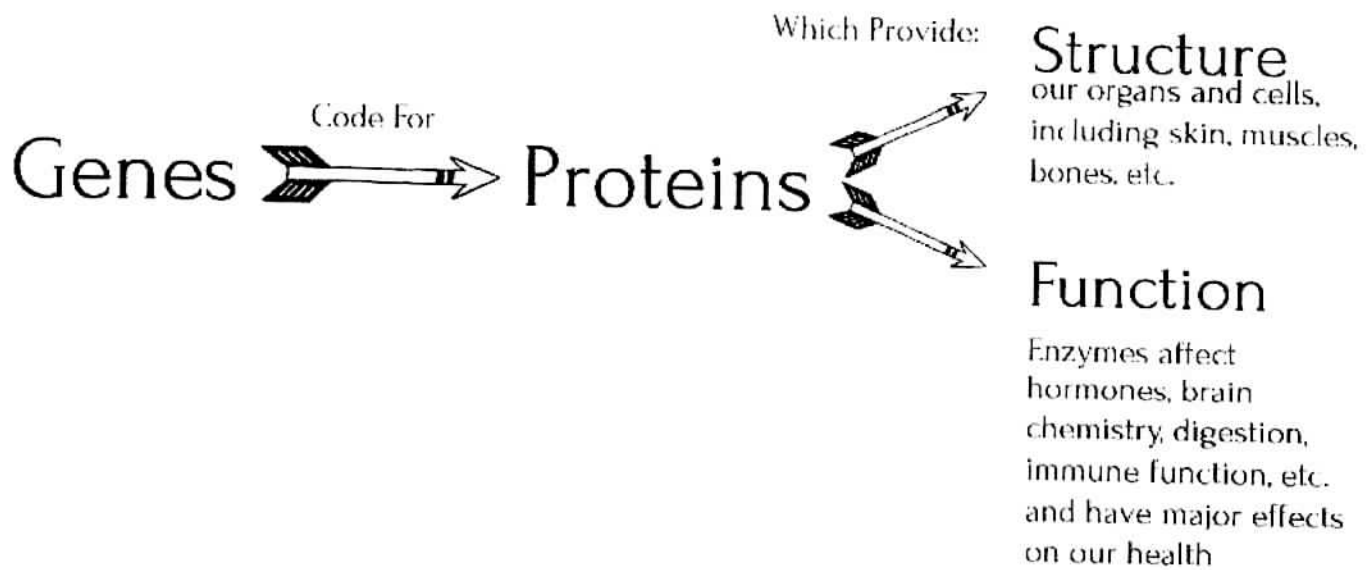
When I talk about Genetic Medicine, I'm talking about using your genetic test results to **understand your body's inherent functional patterns and tendencies toward health vs. disease.**

These are "tendencies" because **our genetic information is like a blueprint:** it's a bunch of information that describes a structure (in our bodies, these structures are proteins, often enzymes).

Genes tell our cells how to build protein and enzyme structures. But we need materials to build the proteins that our genes describe. The materials our cells use mostly come from the food we eat.

What is a Gene? (<https://www.dremiliecwilson.com/blog/2017/7/25/what-is-a-gene>)

The enzymes your genetic blueprint codes for are protein structures that make other things happen. For example: in the case of mental health, I'm looking at enzymes responsible for the creation and breakdown of neurotransmitters (the chemicals inside your brain). How well do your genes program your enzymes to make and break down neurotransmitters? Is there an imbalance in brain chemistry that's contributing to a patient's mental health conditions?



There is one other important piece of the puzzle. It's called **Epigenetics**.

Let's go back to the metaphor of using a blueprint to build a building. The blueprint is the initial plan, but the process of building the structure can be affected by many outside circumstances: just as building a building will be affected by wind, storms, sleet, or unstable ground, **the structures your cells build from your genetic blueprint will be affected by "outside" circumstances, including stress, inflammation, infection, emotional and/or physical trauma, etc.** In Genetic Medicine, the effects of these outside circumstances are called "Epigenetics".

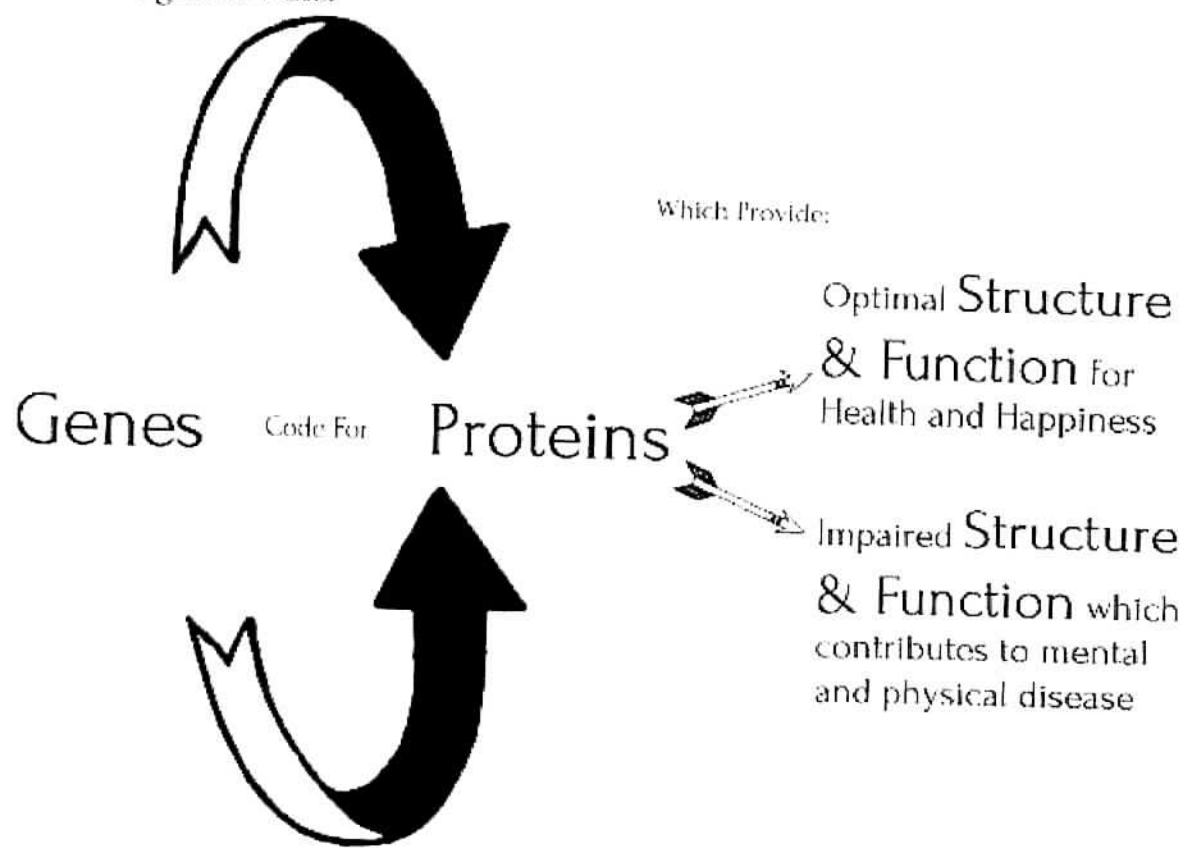
Our genetic code, a.k.a. the blueprint, won't ever change because it can't: we'll have all of the exact same genes for our whole lives. However, not all of our genes are "turned on" and making proteins all of the time.

So which genes are turned on to make proteins and enzymes (or, which genes are being expressed)? The answer to this question is that it depends on epigenetics. **What are the "outside circumstances" that affect your gene expression?**

Do you suffer from excessive stress, lack of exercise, poor sleep, digestive troubles, poor diet, perhaps chronic inflammation? This sets up an epigenetic pattern of unhealthy gene expression, which will cause your body to make different proteins and enzymes than you'd make when you are eating a nutrient-rich diet, sleeping well, and managing stress effectively.

Basically: **Epigenetics is where Nature (our genes) and Nurture (our environment, food, stress, etc.) meet.** And Genetic Medicine is about understanding your genetic potential with genetic testing and then using epigenetics to maximize your health and happiness. As a doctor, **I use lifestyle modifications like specific diet and nutrient therapies, targeted stress reduction techniques, hormone balancing, and precise supplement programs to maximize genetic potential and bring my patients' bodies back into balance.** The results are profound.

Healthy Epigenetic Effects: good nutrition, sleep, exercise, stress management etc.



Unhealthy Epigenetic Effects: poor nutrition, insomnia/lack of sleep, sedentary, stress, chronic infection and inflammation, etc.