The Biology of Nurturing
The Impact Of Maternal Emotions On Genetic Development

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A conversation with Michael Mendizza

Many people feel that there is a point in time when the body locks in its basic patterns and once these physical structures or patterns are established - that they are very difficult to change.

This reflects an idea that the traditional scientific communities established long ago, that once you establish basic patterns, that's it - and then you live out your life. What we are finding now is that the physical system (body) is completely changeable - based on the perceptions and the belief of the system.

In prenatal development, the perceptions and beliefs of the fetus is really the same perceptions and beliefs as the mother - and there are very good reasons for it. When you're developing a new organism, it has to survive in the world that it's coming into. If a child was born into an environment that is vastly different than former generations, it wouldn't be able to adapt.

Take five genetically identical seeds, for example, and put each seed into a different flower pot with different soil and allow each one to grow in a different environment. If you harvest the seeds from the first generation of each plant you will find that the seeds will be pre-adapted to the environment it developed in. Although genetically identical, within the one generation in different environments the seeds will be pre-adapted to perform in that environment. Nature is brilliant to allow such rapid change because the environment is always changing.

The same holds true for a human. The mother has to pre-implant information about the environment into the child to prepare that child to live in this environment. New research deals with the fact that the genetic structure of an organism can change by the organisms interaction with its environment. Our previous concept was that genes change very little and that when they do, which is called a mutation, that the changes are random, and we considered almost all random mutations hazardous. Now we're beginning to find that organisms as primitive as bacteria can change their genetic structure to accommodate a stressful environment. It's necessary for survival. All of a sudden we began looking at the world differently.

Adaptive mutation also recognizes that it isn't just the environment that produced the change, but it's the organism's perception of the environment that determines the type of change that unfolds. This is extremely important, especially in humans.

Lower animal have little room for interpretation. When you get to higher organisms, which have more awareness, a learning bias can insert itself between the real environment and the organism. This bias becomes our perceptions. The higher the learning and awareness the more subjective the learning bias can be.

If a person believes that the environment is hostile, their body will live in a stressful environment even though the real environment may not be hostile. If they perceive it as hostile, then they will change or alter their genetic expression to accommodate their perception. That finding has enormous implications. It's our perception of the environment that alters our physical patterns. Where do our perceptions come from? Television, school, parents, peers, and everything else around us. The development and health of any offspring is related to the interpretation that offspring makes of the environment and this interpretation may have greater impact on physical processes than the actual environment.

Tell me a little bit about your background.

I'm a cellular biologist, a histologist in the sense of studying cells and tissues and their structure and function, and specifically human histology. I am a former University Professor, and for 20 years was a faculty member of a major medical school. At some point I felt something was wrong with our educational system and even though I had tenure, I left the university.

After all these years of education and teaching I started to read physics - and suddenly was faced with a choice. Either the physicists are right in their perception of the universe, or the biologists are right. Today it is clearly established that quantum physics is the foundation of our view of our universe, as we perceive it. Biology is an old science. It was built on Newtonian physics. Biology doesn't even recognize energy as relevant and the physicists have been saying energy is everything. Obviously biology missed the boat at this point.

The biologists discuss matter as being relevant to matter and energy as relevant to energy, but they don't see the relevance of energy to matter. As a consequence they ignore the impact of energy. Physicists call invisible energy forces. The lay audience calls this energy spirit. All the things we have been dealing with as so called spiritual forces can be redefined in terms of quantum physics. If you apply quantum physics to biology you get a very different biology.

Instead of biophysics, you get quantum biophysics. Quantum biophysics gives you a completely different understanding of the universe and of life and of evolution and of earth than regular biophysics. One of the things that we know in quantum physics is that the observer interacts with their environment by just observing it. Traditional biologists don't have that understanding. With quantum physics you must recognize that if you're doing experiments, you're an observer of your own experiments. You are participating and the observer creates or impacts the world they observe.

Biologists haven't recognized this. We are programming ourselves through our own beliefs and we are doing experiments to conform to our beliefs and somewhere along the line it's leading us down this narrow dark tunnel, which you can't get out of.

Why is it a dark tunnel?

When we focus on illness we put weight on the negative side. If every focus is thrown toward the negative, then we're really depleting wellness by just focusing on illness. We have to turn around and start talking about wellness and then we can move the balance back the other way.

Give me some examples, of the relationship between mind, attitude, belief, behavior and biology.

The experiments I did at Stanford, dealt with the vascular system, which covers the blood flowing through the body. Think of it as a series of closed pipes and the blood as a mixture of components. Even though you may have a thousand components, I can take them all and divide them into two categories. There are components in the blood that contribute to the growth and components that contribute protection.

When you classify all the components into two functions, you also recognize something else, that the blood vessel wall is the feature that delineates which of the components is going to be active. It's not up to the blood which is just flowing through the vessel. It has to be up to the vessel to determine if an immune response is needed which is a different vessel structure than if I have a growth response.

Our experiments led to an understanding that the behavior of the blood vessels are regulated by two sets of signal systems. We have two biochemical pathways to affect the same response. We found that the components from the mind can override the physical components. We see this, for example in hypnotherapy. You can hypnotize a person and say I have a burning cigarette, which is actually a piece of chalk. You tell the hypnotized person, "I'm going to touch you with this burning cigarette," and then touch them with the chalk. Within 30 seconds a blister will appear. Why did that response occur? Because we have two sources for each response, perception or belief and the actual physical stimulus.

There's a traditional view that we are slaves to our genes. You inherit genetic traits from your parents and have a propensity to express these traits. This belief system is very limited. It says you are predetermined to a certain extent. That belief system suggests that pre and perinatal influences have no significant impact on the development because our programming comes from the genes.

This idea that we are slaves to our genetics became obsolete only within the last year or so. Very recently we confirmed that we can modify the genes, not randomly like Darwinian biology with random mutations which are generally negative and degenerative, but we can modify the genes to accommodate changes in our environment. It is important to examine the influences of the environment in the process of development.

How does this impact the developing fetus?

A fetus perceives the environment through its mother's chemistry, it's mother's thought fields. Thoughts are electromagnetic fields. The child is being guided by the experiences the mother is having with her environment.

The fate of a child is impacted by the mother's perceptions of her environment. If we recognize this we can find ways to increase the experiences which give rise to more healthy offspring. Two years ago this would have been only a possibility. Now it's a certainty.

How is it a certainty?

Because of the change in our understanding of genetics. Our new understanding deals primarily with basic experiments with bacteria. You put bacteria in an environment that's stressful and they'll mutate their genes. The mutations are not random. They selectively made mutations to accommodate environmental stresses. If bacteria can do that, humans can do it infinitely better. It is fundamental to survival. Anything in biology that is fundamental to the survival is maintained through the lineage of organisms.

So our biological genetic structure is mutating, if you will, in a relationship with the environment all the time?

It is constantly changing. For years its been a dogmatic belief that genes switch themselves on. For example, that the cancer gene switched itself on. This is giving a lot of power to the gene. Although there has never been anything in our history of biology where anyone could show how a gene turns itself on. We just believed that. That leads to a dogma in the field called the primacy of DNA. Primacy meaning first cause, the causality of life is due to the DNA. We ascribe to DNA powers which it really doesn't have. The truth is a gene cannot turn itself on. A cancer gene can't just say today I'm turning on. As we understand it now, the genes are turned by environmental signals.

All the sudden the genes are responsive to the environment. Once you recognize that simple truth, then one must pay attention to the environment because the environment is switching the genes, especially in the earliest stages of development.

This is the developmental phase where the most rapid switching on and off of genes occurs. It is a very sensitive period for the organism and the environment plays a significant role in the selection of the genes that are being switched.

Is there a biological predisposition to violence?

Most everything we're talking about has been regarding physical traits. We haven't really found any behavioral traits. Every time we talk about a behavioral trait it makes big headlines. We have a gene for criminality. We have a gene for homosexuality. We have a gene for alcoholism. We have all these claims that these behaviors are related to genes, they make big headlines which impact everybody, yet, virtually every one of these cases where behavior has been claimed to be a consequence of a gene, the data has been rescinded right afterwards. In fact, most data supports that we learn behaviors. We have the physical traits that we acquired through genetics but how you use the physical traits is based on how you learn to use them.

Learning then becomes the issue. Now we recognize that learning is the consequence of even prenatal experiences, because that is when learning starts. At one time we believed that children weren't capable of learning until they were 6 or 8 years old. Then it was 4. Now it's 0. But it is not 0. Learning occurs any time an organism interacts with its environment. An organism that is surviving must be aware of its environment, which implies learning and awareness.

That environment is the mother's blood for example, which crosses the placenta, where the child is reading the chemistry of the mother. The emotions are in chemistry. If the mother's going through an emotional cycle, the child must go through the same cycles. You have a liver cell, the child has a liver cell. If the mother's liver is affected by a chemical, the child's liver cells are affected. If the mother has a particular response to stress, the developing child will have a predisposition for a similar reaction.

How can mothers and fathers create the best environment for the developing baby?

The most important thing is the feeling of love and safety. Any time you pull away from love, which implies a reduction in safety, you introduce fear into the blood stream which stimulates a protection response.

The work I talked about with blood vessels reveals that the vascular system has a switch. In one side the switch says we're in a growth mode. It the other it says we need to go into a protection mode. But when it goes from growth to protection, growth stops.

We have to recognize that at a very basic, primal level, the system fluctuates between growth and protection depending on what it perceives the environment to be. We also have to recognize that while it's in protection state, it can't grow very well.

As we begin to perceive the environment as hostile, less than safe, less than loving, then the system will automatically divert more resources to protection. The more chronic that belief system, the more chronic the protection. The more chronic the protection, the less growth.

A simple analogy dates back to the fifties. We had bomb shelters. They were for protection. We didn't live in the shelter. We lived outside, which was growth. If the sirens went off, what would we do? We'd go down into the bomb shelter for protection. But how long can you stay in the shelter? The longer you stay in the bomb shelter the more you compromise health and growth. Soon you will run out of food, water, air, and then you're dead. It is very similar for cells.

A growth phase is created by love and safety, but if the alarm sounds and we have to shift into protection, the growth processes stop. You can stop growth for a short time, but once fear becomes chronic, it becomes like trying to live in a bomb shelter. A day or a week maybe okay, but how about a month, maybe two months, or three months? By then, when you open the shelter there won't be anything alive in there. The same thing happens to our cells and our tissues. If we keep locking them in a protection mode, there's a point where pathology and degeneration begin. That of course is what we're trying to avoid.

What do you mean by awareness?

Awareness is recognition of the environment. It is A) receiving information in an environment, and B) determining a plan of behavior to accommodate that information. Awareness is not just seeing the facts, but it's also integrating the facts into behavior.

Learning implies repetition. During development the fetus responds to any information that's repetitive. The mother's behavior is generally repetitive. Over nine months she repeats many things. If she repeats it, the fetus will recognize the pattern, which becomes a form of knowledge. The more it knows the more it habituates.

If a mother were aware of the fact that she's determining the fate of her offspring even before she had the baby, I think she would create a very different set of consequence.

What would you say is the essence of your research?

The bottom line is that we are very powerful, each one of us. Belief is extremely powerful. False or incorrect beliefs become self-limiting. Understanding the change in genetics therefore becomes very important.

Heretofore you were just a consequence of your genes. Now we're beginning to recognize you are actively involved in selecting the choices your genes make. One is

powerless. The other is extremely powerful. I want people to recognize that they are creators. This new biological research enables one to create his or her life and not turn around and say that they're the victims of some hereditary accident.

Why all the Auto Immune Deficiency Syndromes that we're seeing days, it seems like a rather new phenomenon?

We're finding that the environment is not supporting us and at some point the only way out is self-destruction. We find homeless people on our streets. Who are these homeless people? What are they doing? They're just living in this place. We have homeless cells in the body. What are homeless cells? What are they? Cancer. As homeless people rise in the general population, cancer rises within the individuals.

We don't recognize that there's a dynamic parallel relationship between individuals and the environment and that what is going on outside is an image of what is the inside.

Look at what fear does. It sets us up protectionism, which stops growth and development.

Why do you think that?

The general population's image is projecting itself on the individual and the individual is projecting itself on its cells. Whatever is going on in one is going on in the other. When we're afraid, we fall apart. The dust bowl of the thirties is a good example. When we were so afraid, even the environment shut down. The bread basket (growth) in the United States turned into a dust bowl. Why? Because we were afraid. Franklin Roosevelt didn't change the dust bowl, he just changed our minds. He said the only thing to fear is fear itself. When we began to understand this, we got better and the dust bowl disappeared.

I used to be a "died in the world pessimist". I thought this is it. We're going to hell in a hand basket. It is all over. When I started to recognize the plasticity of genetics and of the organisms in our environment, I completely switched. If a person on the deathbed with cancer can undergo a spontaneous remission and walk away healthy, I believe the Earth can as well. As soon as the mindset is changed, we'll get up, walk away, and at that point we'll become healthy again.

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