

## **BLAME YOUR GENES?**

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Whenever something goes wrong in life, we are always looking for the answers as to why this would have occurred. In the case of poor health, disease, or other malfunctions of our body, we tend to blame our problems on “bad genes.” If your parents had a condition, you feel that you are prone to develop the same thing. Even though diseases such as diabetes, hypercholesterolemia, coronary heart disease, cancer, and a multitude of other diseases have patterns of development in successive generations, the real question is whether or not we have to “inherit” our parents’ medical problems. The answer is probably not, because genetics is to blame only 15-20% of the time.

We should first look at genes in general. Visualize that each of us begins life as a single fertilized ovum in which are stored many pieces of evolutionary information, including how the body and mind will develop and the predictability of good or bad health. These are carried in about 3 billion pairs of nucleotides called DNA pairs. There are about 30,000 genes within these structures organized into 23 pairs of chromosomes. That’s a total of 46 chromosomes, half from your mother and half from your dad, filled with the genes that will help determine what your health patterns could be. Some of the genes are “dominant” and some are “recessive.” Each cell in your body contains a mixture of chromosomes which you received, and this comprises your DNA. About 3% of your DNA contains major instructions for building cells, while 97% is not active in that way. This has been called “junk DNA”, but there is a lot of genetic information in this material that may be important in our body.

Information contained in the DNA helps determine the growth and development of the body; however, errors in this process called mutations can occur. Cigarette smoke, chemical carcinogens, viral infections, and exposure to radiation are just a few of the things that can cause mutations. For example, too much ultraviolet light from sunshine can destroy enough of the cellular components in the cells of your skin to cause a mutation that will lead to skin cancer. If there is a genetic tendency to development of skin cancer in a person who has a low antioxidant intake, he or she is even more likely to develop skin cancer. This is genetic influence, and in cases of melanoma there is often a family history of it. This furnishes a good example of how we can alter what might happen in our bodies as a result of our genetic structures. If you are not exposed to excessive sunshine, if you eat fruits and vegetables and keep your antioxidant levels up, and if you don’t get severely sunburned, you will have a low potential for skin cancer.

Alterations in the genetic influence in your body can be controlled to a great extent by your lifestyle habits. If, for example, you engage in dietary caloric restriction which by definition is eating less food which is nutritious, you can change your aging process. Not only can you extend your life expectancy, but you can reduce dramatically the potential for cancer, heart disease, stroke, and even Alzheimer’s disease. You can improve your

health by altering the action of the “bad genes” you may have inherited. Bad genes can be like bad children in a schoolroom which will do what they want unless you subject them to discipline.

One of the most common mutations in genes is the one that causes cancer. These mutations can be passed from parent to child, but can be triggered by exposure to toxins or poor nutrition. Lung cancer occurs more in those who have had a low antioxidant intake, but know that when a stimulus leads to development of a cancer, there may be up to a 20-year incubation period.

Celiac disease is a genetically determined disease characterized by diarrhea and gastrointestinal distress, with wasting away in adults and a failure for children to grow. Wheat, rye, barley, and oats contain gluten (a protein that alters the cells of the GI tract and cause the problem of diarrhea and failure to absorb nutrients from foods). Interestingly, by removing gluten from the diet, a complete recovery can be seen in most individuals. Here is another example of a genetic disease which can be altered through diet.

Another disease which was considered to be genetic is pellagra. It was thought to occur in family groups as a result of inferior “genetic strength” in the parents, but was subsequently noted to be associated with environmental factors. The three signs of pellagra are diarrhea, dermatitis, and dementia, and then ultimately death. It really is caused by a deficiency of the B vitamin niacin. This is an example of how a disease was wrongly thought to be genetic, but is totally controlled by environmental and dietary factors.

Type II diabetes is rampant today in both children and adults. These patients often have higher than normal amounts of insulin, but their bodies don’t react to it normally. Obesity and high carbohydrate intake can cause this. Treatment can focus on producing more insulin, changing the cell’s ability to be sensitive to insulin, or changing the diet. A caloric restriction diet with well-rounded components of protein, carbohydrates, and fat will reduce the symptoms of diabetes and the need for drugs. Diabetes is present in those who have a genetic tendency, but Type II diabetes is dramatically altered by environmental factors, specifically nutritional intake.

So what’s the answer to all of this? Well, we do see that if you have a stress-free life, eat the right nutrients in appropriate quantities, avoid “empty calories,” keep your body weight down to lean, and follow a pattern of exercise appropriate to your body’s ability, you will probably not have diabetes. You also will have a much lower incidence of cancer, heart trouble, pellagra, and other diseases. So as the “keepers” of our own body’s health, it is important to understand that although you may have a genetic tendency for poor health, you can do something about it with your own lifestyle habits and nutritional discipline. Therefore, “bad” genes may be converted into “dormant” genes that never penetrate through and cause you problems.