

TOXIN EFFECTS ON METABOLISM

Metabolism is the term that encompasses the multifaceted set of chemical reactions that happen in living organisms to sustain life. This includes extracting nutrition from our food, converting it to the building blocks for all our tissues, reassembling it as your particular body, and getting rid of the wastes from all these processes. The array of chemical reactions that must take place to achieve all this is truly astonishing. In fact, of the tens of thousands of processes that we have researched, there are still an incalculable number which we cannot yet fully explain. Nonetheless, even a rudimentary understanding of chemistry, such as the combination of two compounds to yield a third, as in “ $a + b \rightarrow c$ ” shows that if we add “d” anywhere in this process, we will probably get a different result. Therefore, toxins and waste products could simply be viewed as chemicals that don’t fit into our equation for human life. As science is increasingly documenting, for instance, in “Environmental toxins, obesity, and diabetes: an emerging risk factor” *Altern Ther Health Med*. 2010 Mar-Apr;16(2):56-8, author Mark Hyman, MD, shows how toxins can cause not only weight gain, but even common metabolic diseases, such as diabetes.

So, how can you determine if unwanted waste products are affecting your metabolism? While there are many complex methods, ranging from biopsying the fat to tease out the chemicals to genetic testing looking for genes that impair detoxification, two simple, painless tests done in our office yield much information directly related to toxin effects on metabolism. Each measures different aspects of how electricity is conducted by the different tissues of the body. *Bio-Impedance Analysis*, or BIA, measures how different tissues in the body, such as muscle or bone versus fat cells, conduct electricity. This tells us not only how much water is in the tissues, but whether it is inside the cell, helping metabolism, or outside the cell, trying to flush away toxins. It also measures health inside the cell with the *phase angle*, a composite measure that takes into account not only toxins, but their effects, such as inflammation, acid-alkaline balance, etc. The higher the phase angle, the healthier the cell. Another test, the *Biomeridian Organ Stress Analysis* (“BOSA”) utilizes the same technology as an EKG to differentiate between healthy tissues which conduct electricity efficiently as compared to unhealthy tissues. This can help determine which aspects of detoxification may be impaired, for instance, liver, kidney or lymphatic system. While neither of these tests diagnoses specific diseases, they provide valuable information about more fundamental causes of disease that happen at the cellular level long before the disease manifests on common blood tests. They can then be treated by various methods, some of which are explained in a companion article “Do’s and Don’ts of Detoxification”.