

Toxic Load: Assessment and Measurement of Health and Well-Being

Your health and well-being are intricately intertwined with the many influences, stressors, and choices that are made over the course of a lifetime. There are physical influences such as infections, toxic chemicals, food allergies and sensitivities, imbalanced hormones, and anatomical abnormalities. Emotional stressors include divorce, death of a family member or close friend, a child with special needs, trauma, along with work-related issues and financial concerns. Guilt, fear and anxiety, and the suppression of negative experiences are spiritual influences that shape life choices. There is a fine line between all of these physical, emotional, and spiritual influences, and it is often blurred.

The summation of all these physical, emotional, and spiritual influences is called Total Load. A person's overall health and well-being ultimately reflects their ability to accommodate this total load of the influences, stressors, and choices they experience.

Let me digress for a moment and take you on a walk through the woods. On this beautiful day you are breathing deeply and enjoying the harmony of nature, the beautiful flowers, and the cool canopy of the forest. Suddenly, you are startled by a bear which has emerged on the trail and is swiftly approaching you. Without any thought you turn and run. Every part of your being is focused on one thing; survival. Fortunately, the mechanisms that improve your chances begin to function immediately. Your heart begins to pump harder and faster to deliver more oxygen and nutrition to your muscles. The arteries that carry the blood open wider to handle the additional pressure. Your vision becomes acute because the pupils dilate to let in as much light as possible. Your liver becomes very busy converting stored energy into sugar and scavenges as many amino acids as possible for energy. At the same time the digestive and sexual functions stop in order to preserve all the energy in the event of a trauma that requires repair. You are totally unaware of the distance and speed you are traveling until a quick glance over your shoulder reveals that the bear turned off the trail and is no longer interested in the chase. As you progress from a sprint, to a trot, then to a walk, all of your physiological systems begin returning to normal.

Here is the problem. Your body doesn't recognize the difference between a bear chasing you through the woods and another total load stressor such as an infection or a toxic chemical. All of the physiological system changes that you experience when the bear is chasing you through the woods also happen with any other influence. Just like the survival mechanism, you can't control the physiological changes; the systems return to normal only after the threat has passed.

In the course of normal human existence, total load stressors come and go. The physiological processes of the body adjust accordingly, and after the stressors pass, the body strives to return to a state of balance and harmony. The technical term for balance and harmony is Homeostasis. Homeostasis is the natural level of health and well-being and the goal is to maintain it at all times.

Maintaining homeostasis becomes challenging when there is chronic stress or multiple influences that prevent the body's physiological systems from returning to normal. With chronic stress or multiple influences, the physical body can no longer maintain homeostasis. The term for this chronic wear and tear on the body as it attempts to maintain homeostasis in the face of chronic stressors is called Allostatic Load.

To clarify the terms: Total Load is the summation of the physical, emotional, and spiritual influences; Allostatic Load is the body breaking down as it continuously adapts to maintain balance or Homeostasis.

Unfortunately in our industrial and modern world, it is impossible to avoid the soup of influences, and everyone is carrying some amount of total load. As the body tries to cope, the signs and symptoms of the struggle emerge and take hold: weight gain, high blood pressure, brain fog, heart palpitations, fatigue, poor digestion, constipation, and sleep problems. Ultimately, without intervention, the symptoms become a named disease: obesity, diabetes, coronary artery disease, Alzheimer's disease, and cancer.

While it is important to be able to describe allostatic load, it is more important to be able measure allostatic load and develop a treatment plan to reduce it. A straightforward but comprehensive test provides a measurement of allostatic Load; called the Allostatic Score. With the test results and the allostatic score, we not only have a road map of the influences impacting the body, but the road signs that indicate the highway back to better health and well-being.

Preventative medicine is based in the concept of flexible treatments that remove the obstacles to health and well-being. The allostatic score is a great advance in preventative medicine. The score tells a patient and the doctor where the patient is on the health spectrum, and where the patient is headed without proper intervention. The patient and doctor must then decide how to use this information to tailor an intervention to the specific needs of the patient.

Total Load stressors are a part of everyday life, and the physiological systems of the body are able to accommodate a certain level of these stressors; as long as they are temporary, and the body is allowed to return to homeostasis. When the body is prevented from returning to a state of balance, allostatic load begins to increase.

There is only so much allostatic load the body can tolerate before the onset of named diseases. Fortunately, testing and measurement is available to determine an individual's allostatic score, identify the components of allostatic load, and provide a roadmap back to balance and homeostasis.

Bibliography

McEwen, B. Allostasis, Allostatic Load, and the Aging Nervous System: Role of Excitatory Amino Acids and Excitotoxicity. *Neurochemical Research* 2000; 25(9/10): 1219-1231.

Coelho, L. et al. Allostatic load is associated with symptoms in chronic fatigue syndrome patients. *Pharmacogenomics* Apr 2006; 7.3: 485.

Seeman, T. et al. Allostatic load as a marker of cumulative biological risk: MacArthur studies of successful aging. *Proc Natl Acad Sci USA*. 2001; 98(8):4770-5.

Rea, W. *Chemical Sensitivity: Volume 1*. Lewis Publishers. 1992.

Rea, W. and Patel, K. Reversibility of Chronic Degenerative Disease and Hypersensitivity; *Regulating Mechanisms of Chemical Sensitivity: Volume 1*. Taylor & Francis Group. 2010.

Textbook of Functional Medicine. David S. Jones, Editor. 2006.

McEwen, B. Sex, stress, and the hippocampus: allostasis, allostatic load and the aging process

Wilson, J. Adrenal Fatigue: The 21st Century Stress Syndrome. *Smart Pubs*. 2001.
