

*Hello all,*

Welcome to the December *COHERENCE Newsletter*. I hope you enjoyed last month's article *Breathing In Harmony With Heaven And Earth* where I describe an exercise that is believed to date back to the time of China's emperor immortals. This month, I'm pleased to review *Relaxation Revolution*, by Herbert Benson and William Proctor. You may recognize Herbert Benson as the pioneer that coined the name "relaxation response" approximately 35 years ago. Since then, he and his research colleagues at Harvard Medical School and Massachusetts General Hospital have continued their research into the health benefits of deep relaxation and mind body exercise, their latest breakthrough being that mind body practices have a profound effect on "gene expression", gene expression ultimately determining the behavior of cells throughout the body – contributing to health or its opposite – disease.

Before we begin, I'd like to introduce you to the work of Mary Lu Brandwein, shakuhachi player, artist, and renaissance person. Mary Lu's incredibly beautiful recording of the shakuhachi classic, *Kyorei* (Suchness), can be heard in full at [shakuhachi.org](http://shakuhachi.org) and at [coherence.com](http://coherence.com). On it, we hear the serene



Breathing Bamboo  
by  
Mary Lu Brandwein

melody of her shakuhachi interplaying with the subtle rhythm of "2 Bells". *Listen, breathe, and experience... peace.*



Herbert Benson, M.D.

Harvard Medical  
School

Following in the footsteps of Harvard's great psycho-physiologists, Oliver Wendell Holmes, William James, and [Walter Bradford Cannon](#), Herbert Benson inherited his penchant for mind body science early in his career. In fact, he discovered the "relaxation response" in the same Harvard Medical School laboratory in which Walter Cannon, in 1915, discovered "fight or flight" - its opposite. [[Listen to the NPR article about Relaxation Revolution.](#)]

While there are thousands of years of evidence that mind body practices have the potential to prevent disease and even heal, no discovery is quite so striking and fundamental as that of Benson and team: that these practices can be seen to affect the most fundamental building blocks of our biology - our genes and the way they *express* themselves. Gene "expression" is used by all life and involves the transcription of information contained in the DNA into RNA, and RNA into proteins, these proteins being the building blocks of our cells, and ultimately our bodies.

Benson and company's study, originally documented in 2008 in the journal PLoS ONE, compared the genetic expression of 19 men and women in good health, all in their mid-30s to early 40s and of varying ethnic backgrounds, with that of 19 expert mind body practitioners. A blood sample was drawn from each of the 38 participants and spun in a centrifuge separating the red and white blood cells from plasma. Genetic material was then removed from the blood cells and analyzed

by a scanner/analyzer that identified all of the 58,000 genes from each participant and determined differences in activity and expression. Of the 58,000, 2209 genes were found to be expressed differently in the group of experienced mind body practitioners as compared to the control group.

The really exciting part is this: Within the 2209 that expressed differently are those genes that are known to relate to stress and related diseases including those that regulate immune function, govern inflammation, contribute to premature aging, and thinning of the cortex, a change in brain structure that often accompanies increasing age.

Benson and team went on to determine if the gene expression of their control group could be modified via mind body exercise. Each of the 19 control participants engaged in an 8 week program of mind body exercise involving: a) eliciting the *relaxation response trigger* which involved repetition of what is in effect a mantra of neutral or positive personal connotation, progressive relaxation, and slow, deep, natural breathing, and b) *visualization*, such that once deeply relaxed, one visualizes themselves in a peaceful environ in radiant health and free of malady.

Upon completing the 8 weeks, blood was again drawn from each of the control group participants and gene expression evaluated and compared against their former expression as well as that of the experienced group, assayed earlier. Astoundingly, 1,561 genes changed their expression from the first test to the second. Secondly, 433 “signatures” were (already) expressing in a way similar to those of the experienced practitioners - the likelihood of these changes occurring by chance being less than 1 in 10 billion.

Furthermore, the genes that began expressing differently with mind body practice are those that are already known to be associated with robust health, where their positive benefits are the opposite outcome of the same genes and their previous expression. In other words, the same genes that might express in a way that builds health, in the absence of mind body practice, can express in a way that detracts from health - making these genes central players in aging and the formation of disease.

Much of *Relaxation Revolution* is dedicated to specific cases where mind body practice was employed to mitigate or fully resolve numerous maladies including angina, anxiety, cancer, depression, headache, hypertension, infertility, insomnia, pain, phobias, preventricular contractions, and more.

There is particular interest in the “cancer connection” where researchers found that the expressions in mind body practitioners are found to be counter to the expressions exhibited by various cancers. Alternatively, the expression observed in seasoned practitioners was found to be consistent with that observed as a consequence of certain cancer therapies. Very exciting indeed!

Thank you all for your interest and best wishes for the holidays,

Stephen Elliott - COHERENCE

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