

**Hello all,**

Welcome to the April *COHERENCE Newsletter*, and thank you very much for your interest. I hope everyone is finding last month's letter, *Coherent Breathing For Therapists and Clinicians* useful. If you happened to miss it, you can find it here. There are a few things I'd like to share with you before we get started with this month's topic, *"Homeostasis Revisited"*. First, I'm pleased to announce that I've opened a private practice in cooperation with *Athletic Advantage Physical Therapy* (Cody Johnson, M.P.T, M.A.T.) and *Rider Wellness* (Michael Rider, D.C.). My practice focuses on coaching both individual clients and health care professionals in Coherent Breathing for health, well-being, and performance. To find out more visit [CoherentBreathing.Org](http://CoherentBreathing.Org). Secondly, I'll be leading the 1 day workshop: *The Art & Science of Coherent Breathing* at *Neuroquest* (Elsa Baehr, Ph.D.) in Chicago on Friday, June 19th. The workshop accommodates 14, with 7 seats still available. Please visit [CoherentBreathing.Org](http://CoherentBreathing.Org) to find out more. I hope you can make it!



This month's letter *"Homeostasis Revisited"*, explores "homeostasis", derived from the Greek "homeo" (similar) and "stasis" (the state of equilibrium or inactivity caused by equal opposing forces). Coined by the famous American psychophysiological Walter Bradford Cannon (1871-1945), who in 1915 also coined the term "fight or flight", *homeostasis* refers to the property of a system to regulate its internal environment, maintaining a stable, *constant* internal condition in the presence of stressors, either external or internal. Cannon is thought to have derived the notion from Claude Bernard's earlier "milieu interieur", which Bernard (1813-1878) summarizes: "The fixity of the milieu supposes a perfection of the organism such that the external variations are at each instant compensated for and equilibrated.... All of the vital mechanisms, however varied they may be, have always one goal, to maintain the uniformity of the conditions of life in the internal environment."<sup>1</sup> However, where Bernard was focused at the cellular level, Cannon's *homeostasis* broadens the notion to encompass the complete living organism, mental and physical. [Cannon was one of the first to study the physiology of emotion.] Cannon posited these four principles that capture the general characteristics of homeostasis:

1. Living organisms demonstrate constancy - mechanisms are necessary to maintain constancy.
2. Constancy requires that "change" be met with "resistance to change".
3. Living systems demonstrate multiple regulatory mechanisms to maintain constancy.
4. *And lastly, homeostasis does not occur by chance, but is the result of organized self government.*<sup>2</sup>

In 1988, Sterling and Eyer proposed the concept of “allostasis”, which emphasizes the fact that in actuality we maintain constancy through change. This “adaptation” relates to Cannon’s 3rd tenet, that living systems employ multiple simultaneous regulatory mechanisms to maintain homeostasis. The degree to which these regulatory mechanisms must work represents “allostatic load”, the bur-



Walter Bradford Cannon, Chair, Department of Physiology, Harvard (1906-1942)

den of adaptation. When “burden” exceeds “capacity”, we end up in allostatic overload, chronic overload leading to disease. In other words, when life’s challenges exceed our capacity to cope, our health is placed in jeopardy.<sup>3</sup>

Now, given that we’re talking about a living organism with multiple regulatory mechanisms that are striving to maintain constancy, it stands to reason that there is a “state” (or states) in which homeostatic mechanisms work most effectively and efficiently, and the health and well-being of the organism is maximized. Or maybe, it is the state in which the organism itself is less threatened and perturbed, and therefore the need for adaptation is

minimized, i.e. “mountains are not made out of mole hills”. I think it’s likely both.

Anyway, I’m coming to believe that such a state does exist – it is that of *breathing induced* autonomic balance. If in this state, we assume that the exposure to stressors remains the same [which could be argued against], our psychophysiological reaction to them is tempered, homeostasis maintained, and allostatic capacity preserved. I emphasize “breathing induced autonomic balance” because I’m not aware of any other means of attaining autonomic balance while we’re awake, except via medication, and at present I’m not aware that medication induced autonomic balance yields the same advantage. Given what we know about breathing’s affect on bloodflow, etc. this is understandable.

Referring to Cannon’s 3rd tenet, breathing fits very nicely as a “regulatory mechanism”, which we know that it is, affecting multiple systems. With this in mind, if we broaden the concept of homeostasis to include “consciousness”, we might be so bold as to embellish his 4th tenet in this way...

***“Homeostasis does not occur by chance, but is the result of organized self government, including conscious regulation of breathing.”***

Thank you for your interest and consideration.

Stephen Elliott

References:

1. [http://en.wikipedia.org/wiki/Milieu\\_interieur](http://en.wikipedia.org/wiki/Milieu_interieur)
2. [http://en.wikipedia.org/wiki/Walter\\_Bradford\\_Cannon](http://en.wikipedia.org/wiki/Walter_Bradford_Cannon)
3. <http://en.wikipedia.org/wiki/Allostasis>