**Supplemental Text Box 7**

**Breath Interventions for Upregulating Vagal Function**

An increasing number of studies demonstrates that slow-breath interventions help upregulate the vagal system (www.mybrainsolutions.com/mycalmbeat).1–18 A noted in the main text, two different mechanisms are likely to mediate the therapeutic effects of slow breath interventions. The gating of vagal activity by respiration is mediated centrally—cardiac vagal neurones from the nucleus ambiguous sit in close proximity to neurons involved in respiration and modulate heart function in synchrony with the respiratory cycle—with the consequence that if the breathing rate slows, vagal activity is automatically upregulated.19,20 In addition to the central mechanism, pro-vagal afferents are also likely to be involved. According to Craig’s model of the autonomic system, stimulation of pro-vagal afferents—all of which input into the left insula—will activate “parasympathetic” representations in the left insula, thereby causing deactivation of the right insula (representing sympathetic activation) and other sympathetic-related regions (see Supplemental Text Box 1).1,3,7,21–26 Because the parasympathetic system is part of a broader system mediating states of calm and connection,27 its activation has also been proposed to mediate shifts in central patterns of neurotransmitter release, upregulating release of neurotransmitters associated with states of calm.21,28,29

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