

# With the body in mind : the role of exercise and acid-base balance in panic

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Propositions belonging to the thesis

**WITH THE BODY IN MIND:**  
**THE ROLE OF EXERCISE AND ACID-BASE BALANCE IN PANIC**

**GABRIEL ESQUIVEL**  
Maastricht, 14 October 2009

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1. The complex relationship between exercise and affect should be dissected in several simplified models at different levels of organization
2. Acute exercise inhibits experimentally induced panic attacks in a degree comparable to standard antipanic treatment
3. Acute exercise is a useful experimental tool with heuristic value into antipanic mechanisms
4. Changes in endorphinic function do not modify the response to experimentally induced panic
5. Differences in serotonergic function, whether induced by pharmacological means or determined by 5-HTTLPR genotype, modify the response to experimentally induced panic
6. Panic is a primal emotion evolved as a homeostatic defensive response to immediate threats within our body, which include suffocation and its related increases in the body's pCO<sub>2</sub> and H<sup>+</sup> concentration
7. "The devices which produce emotions occupy a fairly restricted ensemble of subcortical regions, beginning at the level of the brainstem and moving up to the higher brain; the devices are part of a set of structures that both regulate and represent body states". (Antonio Damasio, The feeling of what happens)
8. "The mind is inherently embodied... not in the trivial sense of being implementable in a brain, but in the crucial sense that conceptual structure and the mechanisms of reason arise ultimately and are shaped by from the sensory-motor system of the brain and body". (George Lakoff and Mark Johnson, Philosophy in the flesh)
9. "There are times in life when the question of knowing if one can think differently than one thinks, and perceive differently than one sees, is absolutely necessary if one is to go on looking and reflecting at all." (Michel Foucault, The history of Sexuality)
10. "...nothing which we are to perceive in this world equals  
the power of your intense fragility; whose texture  
compels me with the colour of its countries,  
rendering death and forever with each breathing...". (e. e. cummings, W {ViVa})