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## Characterization of the fight-or-flight response evidences a common etiology for psychosomatic-metabolic dysfunctions

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Therapies for mental health because are based in causation, differ widely. Psychoanalysis assigns to the unconscious mind, the etiology of mental diseases. Ethology emphasizes evolutionary, adaptive behavior. Sensor neurons activate the fight-or-flight response at the hypothalamic-pituitary-adrenal axis. This signaling upsurges secretion by the adrenal of epinephrine to deplete glycogen and fat reserve and cortisol to release amino acids from proteins to favor gluconeogenesis in support of the brain. The pancreas pulsatile release of insulin became affected distorting the brain circadian rhythm of glucose uptake. The fight or flight arousal allows the rate of ATP generation and consumption to overcome the modulatory limits of Energy Charge, and oppose the ATP-requiring regeneration of glycogen and fat reserves. Epinephrine from blood cannot cross the blood-brain barrier for a negative feedback in the glucose-sensitive neurons of the hypothalamus. This configures an "in common" incomplete axis, controlling the responsiveness of adenylyl cyclases to norepinephrine in brain and to epinephrine on tissues. Dysfunction at this level may explain autistic behavior. A link between hormonal and metabolic events results from the depletion of CaATP and ATP<sup>4-</sup>, and other chelating metabolites, leading to an ionic equilibrium, releasing free Mg<sup>2+</sup> and Ca<sup>2+</sup>, which at the postsynaptic beta and alpha-receptors control adenylyl cyclase. Thus, the cAMP response element-binding (CREB) could transduce DNA to be expressed as behavior. Serotonergic afferents to the locus coeruleus regulate α2-adrenergic and 5-hydroxytryptamine receptors. Serotonin is involved in many behaviors such as hunger, sleep, sexual response, impulse control, aggressive behavior and anger, depression, anxiety and perception.

### Biography

Alfred Bennun has completed his PhD at the age of 29 from Cordoba University. Postdoctoral studies at Weizmann Institute of Science, Biochemistry Section, Rehovoth, Israel; by NIH award at the Biochemistry Section, Public Health Research, Institute of City of New York, Inc.; by NIH award special fellow, at the Department of Biochemistry, Cornell University, Ithaca, New York. He has published more than 70 papers in reputed journals and serving as editorial board member. He is a Full Professor of Biochemistry at Rutgers University.

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