Opinion

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The theory "Unus pro omnibus, omnes pro uno" (Latin) of Dr. Ivan Domuschiev, Ph.D. - about the universal meaning of heart rate variability (HRV) in medicine

Abstract

There is hardly any other research method (besides HRV research) that has had so many articles written about it and so many studies conducted over the last 20 years applying this method to different fields and conditions in medicine (heart, brain, the endocrine system, hormones, emotions, stress, mental states, neurological diseases, immune system, intestine, microbiota, etc. This only speaks of the universal importance of this research method. This gave me reason to come to the conclusion that Heart rate variability (HRV) is a universal indicator of the complex state of health (physical, mental, astral). In the end I presented my theory. ***"Unus pro omnibus, omnes pro uno" (Latin) of Dr. Ivan Domuschiev, Ph.D.- about the universal meaning of Heart Rate Variability (HRV) in medicine*** *(In English the theory* ***" One for All and All for One").*** There will probably be quite a few opponents of this theory, but let them first carefully examine the evidence, because "When the facts speak, even the gods are silent."

Keywords: heart rate variability, universal, theory, medicine, meaning, heart, brain, emotions, psyche, immunity, hormones, subconscious, health, predictor

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Opinion

"One" is HRV, and "All" are the Physical body (all functional systems and organs of the human organism) + the Psyche (mentality) + the Astral body. As the basis of this theory, we can accept Nikola Tesla's teachings on electromagnetism and quantum physics. We can visually represent this theory with the following equation:

Physical + Mental + Astral Health = Heart Rate Variability (HRV)

And now we will present some facts in more detail to support this theory: A very large number of scientific studies have been conducted on HRV and an enormous number of scientific publications have been written.

Heart rate variability (HRV) is a universal indicator of the complex state of health (physical, mental, astral)

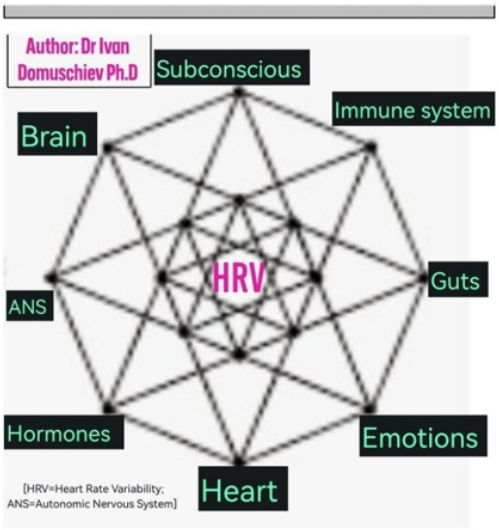
Heart rate variability (HRV) is a measure of the variation in time between successive heartbeats. It is a physiological phenomenon that reflects the complex interplay between the sympathetic and parasympathetic nervous systems. HRV has been widely used to assess the autonomic nervous system (ANS) function and its relationship with various health conditions. HRV could be a universal indicator of the complex state of health, including physical, mental, and astral health. Physical health is the most obvious and well-studied aspect of HRV, with numerous studies showing that low HRV is associated with an increased risk of cardiovascular disease, mortality, and other chronic conditions.[1–10]

In addition, HRV is very well studied in athletes of various sports and it is used to study their physical preparation and relaxation during training. It serves as a prognostic parameter for evaluating their sports-physical qualities. HRV can provide information about the other complex systems that contribute to overall health, such as the immune system, endocrine system, and digestive system.[11–17] There are made studies in this area.

Mental health is another area where HRV has been shown to be a useful indicator. Studies have found that low HRV is associated with increased levels of anxiety, depression, and stress. Conversely, high HRV has been linked to better emotional regulation, cognitive flexibility, and resilience.[18–23]

Astral health, or spiritual health, is a less well-studied aspect of HRV. However, some studies have suggested that HRV can be a useful tool for assessing the impact of spiritual practices on health. For example, a study of yoga practitioners found that their HRV was significantly higher than non-practitioners, suggesting that yoga may promote better astral health.[24–51]

HRV could be a promising tool for assessing the complex state of health.



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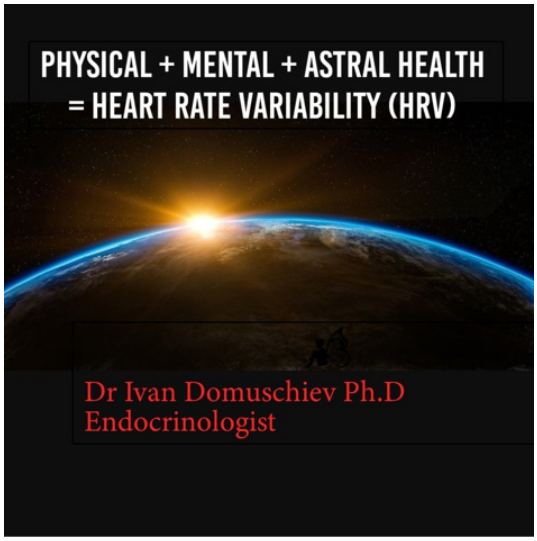

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Conflicts of interest

The author declares there is no conflict of interest in this job.

References

1. Arakaki Xianghong, Arechavala Rebecca, Choy Elizabeth, et al. The connection between heart rate variability (HRV), neurological health, and cognition: A literature review. *Frontiers Neuroscience*. 2023;17:1055445.
2. Čukić M, Savić D, Sidorova J. When Heart Beats Differently in Depression: Review of Nonlinear Heart Rate Variability Measures. *JMIR Ment Health*. 2023;10:e40342.
3. Yugar Louise, Yugar Toledo Juan, Dinamarco Nelson, et al. The Role of Heart Rate Variability (HRV) in Different Hypertensive Syndromes. *Diagnostics*. 2023;13(4):785.
4. Talbert Leah, Kaelberer Zoey, Gleave Emma, et al. A systematic review of heart rate variability (HRV) biofeedback treatment following traumatic brain injury (TBI). *Brain injury*. 2023;37(7):635–642.
5. Yoo Hyun Joo, Nashiro Kaoru, Min Jungwon, et al. Heart rate variability (HRV) changes and cortical volume changes in a randomized trial of five weeks of daily HRV biofeedback in younger and older adults. *International Journal of Psychophysiology.* 2022;181:50–63.
6. Aggarwal Ritu Kumar Suneet. (2022). HRV based feature selection for congestive heart failure and normal sinus rhythm for meticulous presaging of heart disease using machine learning. *Measurement: Sensors*. 2022;24:100573.
7. Lin I Mei, Lin Pei Yun, Fan Sheng Yu. The Effects of Heart Rate Variability (HRV) Biofeedback on HRV Reactivity and Recovery During and After Anger Recall Task for Patients with Coronary Artery Disease. *Applied Psychophysiology and Biofeedback*. 2022;47(2):131–142.
8. Dan Tao, Yeheng He, Cole Alistair, et al. The benefits of Heart Rate Variability (HRV) in the assessment of health and exercise performance. *Imaging Journal of Clinical and Medical Sciences*. 2022;9(1):011–014.
9. Babini Hossein, Kulish Vladimir, Krejcar Ondrej, et al. Decoding of heart-brain relation by complexity-based analysis of Heart Rate Variability (HRV) and Electroencephalogram (EEG) signals. *Fractals*. 2022;30(7):1–11.
10. Evangelista Giacomo, Dono Fedele, Consoli Stefano, et al. Heart rate variability (HRV) modification as predictive factor of Sudden Unexpected Death in Epilepsy (SUDEP): how far are we? A systematic review and meta-analysis. *European Journal of Neurology*. 2023; 30:2122–2131.
11. Sousa RГєben, Ribeiro da Silva Diana, Petrocchi, et al. At the heart of change: Differences in young offenders™ HRV patterns after the delivery of the PSYCHOPATHY.COMP program. *Frontiers in Psychiatry*. 2023;13:1032011.
12. Trivedi Gunjan, Sharma Kamal, Saboo Banshi, et al. Humming (Simple Bhramari Pranayama) as a Stress Buster: A Holter-Based Study to Analyze Heart Rate Variability (HRV) Parameters During Bhramari, Physical Activity, Emotional Stress, and Sleep. *Cureus*. 2023;15(4):e37527.
13. Aggarwal Ritu, Kumar Suneet. *Feature Selection for HRV to Optimized Meticulous Presaging of Heart Disease Using LSTM Algorithm*. 2022.
14. Jiryis Talita, Magal Noa, Fructher Eyal, et al. Resting heart rate variability (HRV) mediates the relationship between perceived chronic stress and ambiguity avoidance. *Scientific reports*. 2022;12:17645.
15. Ranpuria Reena, Hall Martica, Chan Chris, et al. Heart rate variability (HRV) in kidney failure: Measurement and consequences of reduced HRV. Nephrology, dialysis, transplantation. 2008;23(2):444–449.
16. Kamath MV, Watanabe MA, Upton ARM. *Heart rate variability (HRV) signal analysis*. Clinical applications. 2012. p. 532.
17. Piralaiy Elaheh, Siahkuhian Marefat, Nikokheslat. Impact of glycemic control and disease duration on heart rate variability (HRV) in type-2 diabetic neuropathy men. *Urmia medical journal*. 2022.
18. Buchhorn, Reiner. *24 Hour Heart Rate Variability Analysis (HRV) in Childhood*. 2015.
19. Cortese Maria, Vatrano Martina, Tonin Paolo, et al. Inhibitory Control and Brainв-Heart Interaction: An HRV-EEG Study. *Brain Sciences*. 2022;12(6):740.
20. O'Rourke Mark, Stokes Sherry, Regina Franco. Heart rate variability (HRV) training for symptom control in cancer survivors. *Journal of Clinical Oncology*. 2017.
21. Kim Sonya, Zemon Vance, Cavallo, Marie, et al. Heart rate variability biofeedback, executive functioning and chronic brain injury. *Brain injury*. 2013;27(2):209–222.
22. Kim Sonya, Zemon Vance, Lehrer Paul, et al. Emotion regulation after acquired brain injury: a study of heart rate variability, attentional control, and psychophysiology. *Brain injury*. 2019;33(8):1012–1020.
23. Kirk Ulrich, Ngnoumen Christelle, Clausel Alicia, Purvis Clare. Using Actigraphy and Heart Rate Variability (HRV) to Assess Sleep Quality and Sleep Arousal of Three App-Based Interventions: Sleep Music, Sleepcasts, and Guided Mindfulness. *Journal of Cognitive Enhancement*. 2022;6(2):216–231.
24. Korda Mykhaylo, Gozhenko Anatoliy, Fihura Oksana, et al. Relationships between plasma levels of main adaptogene hormones and EEG & HRV parameters at human with dysadaptation. *Journal of Education, Health and Sport*. 2021;11(12):492–512.
25. Lukyanchenko Oleksandr, Melnyk Oksana, Gozhenko Olena. Features of the HRV, endocrine and metabolic parameters in persons whose immune status is susceptible or resistant to chronic stress. *Journal of Education, Health and Sport*. 2020;10(3):177–187.
26. Vovchyna Yuliya, Voronych Nataliya, Zukow Walery, et al. Relationships between normal or borderline blood pressure and some neural, endocrine, metabolic and biophysic parameters in women and men. *Journal of Education, Health and Sport*. 2016;6(2):163–182.

27. Kulchynskyi Andriy, Kovbasnyuk Marta, Korolyshyn Tetyana, et al. Neuro-Immune Relationships At Patients With Chronic Pyelonephrite And Cholecystite. Communication 2. Correlations Between Parameters Eeg, HRV and Phagocytosis. *Journal of Education, Health and Sport*. 20166(10):377–401.

28. Gozhenko Anatolii, Hrytsak Yaroslav, Barylyak Liliya, et al. Features of immunity by various constellations of principal adaptation hormones and autonomous regulation in practically healthy people. *Journal of Education, Health and Sport*. 2016;6(10):215–235.

29. Babelyuk Valeriy, Tserkovniu Ruslan, Babelyuk Nazariy, et al. The parameters of gas discharge visualization (biophotonics) correlated with parameters of acupuncture points, EEG, HRV and hormones. *Journal of Education, Health and Sport*. 2021;11(12):359–373.

30. Verhaar Barbara, Mosterd Charlotte, Collard Didier, et al. Sex differences in associations of plasma metabolites with blood pressure and heart rate variability: The HELIUS study. *Atherosclerosis*. 2023;S0021–9150(23):00210–00211.

31. Tsubokawa Masaya, Miyuki Nishimura, Mikami Tatsuya, et al. Association of Gut Microbial Genera with Heart Rate Variability in the General Japanese Population: The Iwaki Cross-Sectional Research Study. *Metabolites*. 2022;12(8):730.

32. Mörkl Sabrina, Oberascher Andreas, Tatschl Josef, et al. Cardiac vagal activity is associated with gut- microbiome patterns in women-An exploratory pilot study. *Dialogues in Clinical Neuroscience*. 2022;24(1):1–9.

33. Ali Khawar M, Chen, Jiande. Roles of Heart Rate Variability in Assessing Autonomic Nervous System in Functional Gastrointestinal Disorders: A Systematic Review. *Diagnostics*. 2023;13(2):293.

34. Sadowski Adam, Dunlap Corina, Lacombe Alison, et al. Alterations in Heart Rate Variability Associated With Irritable Bowel Syndrome or Inflammatory Bowel Disease: A Systematic Review and Meta-Analysis. *Clinical and Translational Gastroenterology*. 2020;12(1):e00275.

35. Wang Bei Bei, CUI Can, Liao Shan Ying, et al. Analysis of short-term heart rate variability in patients with Crohn's disease. *Food Science and Technology*. 2021;42.

36. Hirten Robert, Danieletto Matteo, Scheel Robert, et al. Longitudinal Autonomic Nervous System Measures Correlate With Stress and Ulcerative Colitis Disease Activity and Predict Flare. *Inflammatory Bowel Diseases*. 2021;27(10):1576–1584.

37. Wegeberg Anne Marie, Okdahl Tina, FlГ¨yel, et al. Circulating Inflammatory Markers Are Inversely Associated with Heart Rate Variability Measures in Type 1 Diabetes. *Mediators of Inflammation*. 2020:3590389.

38. Wegeberg A, Okdahl T, Riahi Sam, et al. Elevated levels of interleukin-12/23p40 may serve as a potential indicator of dysfunctional heart rate variability in type 2 diabetes. *Cardiovascular Diabetology*. 2022;21(1):5.

39. Sloan Richard, McCreath Heather, Tracey Kevin, et al. RR Interval Variability Is Inversely Related to Inflammatory Markers: The CARDIA Study. *Molecular medicine*. 2007;13(3–4):178–184.

40. O'Brien William, Watford Tanya, Lim Sam Chung Xiann. An Examination of the Orienting and Defensive Responses Using HR and HF-HRV. *Journal of Psychophysiology*. 2023.

41. Magnon Valentin, Dutheil Fred, Vallet Guillaume. The heart to make the right choice: Vagal (re)activity and recovery predict advantageous decision-making. *Physiology & Behavior*. 2022;254:113911.

42. Magnon Valentin, Dutheil Fred, Vallet Guillaume. Benefits from one session of deep and slow breathing on vagal tone and anxiety in young and older adults. *Scientific Reports*. 2021.

43. Chaitanya Shyam, Datta Anjum, Rathore Bharti, et al. Effect of Resonance Breathing on Heart Rate Variability and Cognitive Functions in Young Adults: A Randomised Controlled Study. *Cureus*. 2022;14(2):e22187.

44. Chelidoni Olga, Plans David, Ponzo Sonia, et al. Exploring the Effects of a Brief Biofeedback Breathing Session Delivered Through the BioBase App in Facilitating Employee Stress Recovery: Randomized Experimental Study. *JMIR mhealth and uhealth*. 2020;8(10):e19412.

45. Ribeiro Thais, Sobregrau SangrГ Pau, Garcia Esther, et al. Assessing effectiveness of heart rate variability biofeedback to mitigate mental health symptoms: a pilot study. *Frontiers in Physiology*. 2023;14:1147260.

46. Garcia Esther, ValdГ©s Adriana, Lazaro Jesuєs, et al. Psychosomatic response to acute emotional stress in healthy students. *Frontiers in Physiology*. 2023;13:.960118.

47. Bassett Darryl. A literature review of heart rate variability in depressive and bipolar disorders. *The Australian and New Zealand journal of psychiatry*. 2016;50(6):511–519.

48. Pushpanathan Punita, Kuppusamy Saranya, Subramanian Senthil, et al. Gender difference in heart rate variability in medical students and association with the level of stress. *National Journal of Physiology, Pharmacy and Pharmacology*. 2016;6(5):431–437.

49. Shaffer Fred, Meehan Zachary. An undergraduate program with a heart: Thirty years of research on Truman's HRV. *Applied psychophysiology and biofeedback*. 2022;47(4):317–326.

50. Rajbhandari Pandey Karishma, Panday Dipesh. Heart rate variability (HRV). *Journal of Clinical and Experimental Cardiology*. 2018.

51. Pham Tam, Lau Zen Juen, Chenb SH, et al. (2021). Heart rate variability in psychology: A review of HRV indices and a lesson in analysis. *Sensors*. 2021;21(12):3998.

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