

The Autonomic Assessment Report: A New Noninvasive Measure of Autonomic Function and Balance

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The HeartMath Research Center, based at the Institute of HeartMath (IHM) in Boulder Creek, CA, has developed a sophisticated tool for quantifying autonomic function called the Autonomic Assessment Report (AAR). The aims of the AAR are: (1) to provide physicians with a new, powerful, noninvasive test which quantifies autonomic function and balance and aids in risk stratification; (2) to offer researchers a test that can validate the effects of their interventions on autonomic function, and (3) to generate data that will allow the autonomic profiles in a number of pathological conditions to be more fully characterized. The AAR is derived from 24-hour ambulatory ECG (Holter) recordings, and is based on analysis of heart rate variability (HRV), which provides a unique window into the interactions of sympathetic and parasympathetic control of the heart. The report includes time domain, frequency domain and circadian rhythm analysis, which together constitute a comprehensive analysis of autonomic activity, balance and rhythms. Time domain measures include the mean normal-to-normal (NN) intervals during a 24-hour recording and statistical measures of the variance between NN intervals. Power spectral density analysis is used to assess how power is distributed as a function of frequency, providing a means to quantify autonomic balance at any given point in the 24-hour period, as well as to chart the circadian rhythms of the different branches of the autonomic nervous system.

Autonomic imbalances have been implicated in a wide variety of pathologies, including depression, fatigue, premenstrual syndrome, hypertension, diabetes mellitus, ischemic heart disease, coronary heart disease and environmental sensitivity. Stress and emotional states have been shown to dramatically affect autonomic function. Self-management techniques, which enable individuals to gain greater control of their mental and emotional stress and improve their sympathovagal balance, can significantly impact a wide variety of disorders in which autonomic imbalance plays a role. Clinical examples of HRV measures from patients with various symptoms are presented. Several examples of patients who were able to significantly improve their autonomic balance, symptomatology and psychological well-being through training and practice in emotional management interventions are discussed.

For further details, see also: [Autonomic Assessment Report Guidebook e-booklet](#).