

HEART RATE VARIABILITY

Insight Into The Nervous System



Dr. Christopher Kent
Co-Founder and Director of Research
Chiropractic Leadership Alliance



The Heart, The Brain and the Autonomic System

There is a 2-way communication system between the brain and the heart. Analysis of the beat-to-beat patterns of the heart may be used to evaluate balance between the sympathetic and parasympathetic divisions of the autonomic nervous system. When the two branches of the autonomic system are working together at maximum efficiency, you feel “in sync.” This is because the sympathetic and parasympathetic divisions are not fighting one another. Such a condition is termed “entrainment.” (1)

Variability in heart rate reflects the vagal and sympathetic function of the autonomic nervous system, and has been used as a monitoring tool in clinical conditions characterized by altered autonomic nervous system function (2). Spectral analysis of beat-to-beat variability is a simple, non-invasive technique to evaluate autonomic dysfunction (3).

Wellness

Normative data on heart rate variability have been collected (4,5,6). This technology appears to hold promise for assessing overall fitness. Gallagher et al (7) compared age-matched groups with different lifestyles. These were smokers, sedentary persons, and aerobically fit individuals. They found that smoking and a sedentary lifestyle reduces vagal tone, whereas enhanced aerobic fitness increases vagal tone. Dixon et al (8) reported

that endurance training modifies heart rate control through neurocardiac mechanisms.

In occupational health, the effects of various stresses of the work environment of heart patients and asymptomatic workers may be evaluated using heart rate variability analysis (9).

Chiropractic Care

Zhang and Dean (10) reported the results of an exciting study involving 520 subjects in a single-visit group, and 111 subjects in a four-week group. The purpose of the study was to investigate the effect of chiropractic care in a multi-clinic setting on the balance of the sympathetic and parasympathetic nervous system using HRV (heart rate variability) analysis. The study demonstrated consistent changes in HRV. The authors reported, “The decreased heart rate and increased total power from the HRV analysis indicated a healthy autonomic nervous system balance after correction of vertebral subluxation.”

Acquired dysautonomia is one of the three elements in the three-dimensional model of vertebral subluxation (11). Skin temperature changes, reflecting alterations in vasomotor tone, are used clinically to assess autonomic changes associated with vertebral subluxations. Heart rate variability represents an exciting, non-invasive technology to assess subluxation-related autonomic function.

Proprietary instrumentation, developed by CLA, is designed to control for emotional arousals, which can contaminate HRV data collected using other systems. HRV capability may be added to the Insight™ Millennium instrument. It will empower the practicing chiropractor to assess and communicate the far-reaching impact of subluxation correction.

For Further Information contact Chiropractic Leadership Alliance, Inc. 800-285-2001, or 201-684-1390. Visit us on the web at www.subluxation.com.

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