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 Overview of Heart
 Rate Variability 

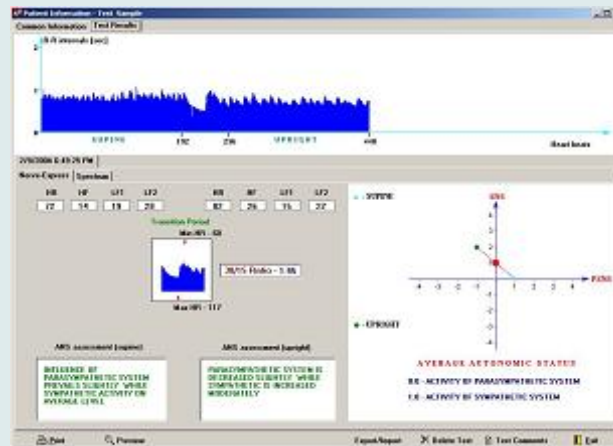

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What is the Nerve-Express?

QUANTITATIVE ASSESSMENT of the Autonomic Nervous System & the Level of Physical Fitness based on HEART RATE VARIABILITY ANALYSIS



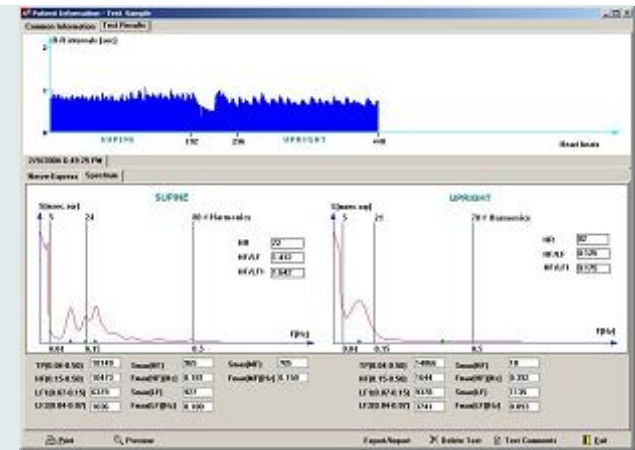
Nerve-Express is a fully automatic, non-invasive computer-based system designed for quantitative assessment of the Autonomic Nervous System (ANS) based on Heart Rate Variability (HRV) analysis.



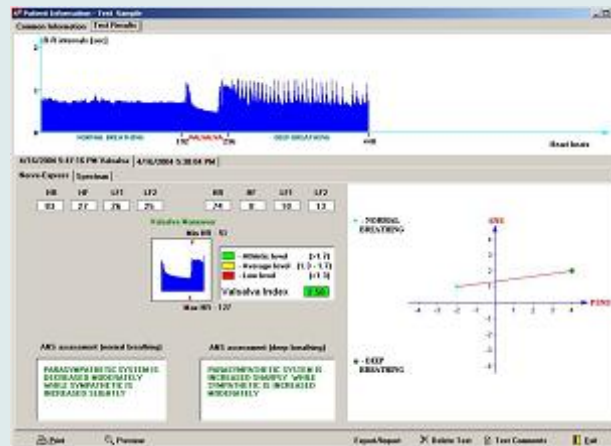
Autonomic assessment during orthostatic test

HRV analysis is based on measuring variability in heart rate; specifically, variability in intervals between R waves - "RR intervals". These RR intervals are then analyzed by spectral (as in Nerve-Express) or some other form of mathematical analysis (e.g., chaos, wavelet theories). Such mathematical analysis generates multiple parameters; typically 20-30. The problem of SNS-PSNS quantification, which has remained for many years the principal dilemma of HRV analysis, is specifically in reducing all possible variations of these multiple parameters to a quantitative relationship between only two parameters: SNS and PSNS.

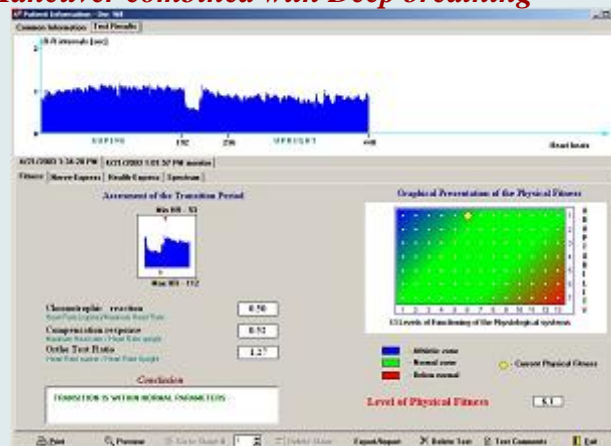
Nerve-Express is the first and only system to solve the problem of SNS-PSNS quantification. This technological breakthrough is achieved by using proprietary algorithms and a new approach based on one of the leading theories of Artificial Intelligence - Marvin Minsky's Frame Theory. Nerve-Express objectively and reliably evaluates the state of ANS in "real-time" (up to 24 hours) as well as during Orthostatic test and Valsalva maneuver combined with Deep Breathing. Due to its highly sophisticated HRV analysis, Nerve-Express is the only system that enables precise recognition and classification of 74 ANS states with a corresponding qualitative description for each one.



Spectrum during orthostatic test



Autonomic assessment during Valsalva Maneuver combined with Deep breathing



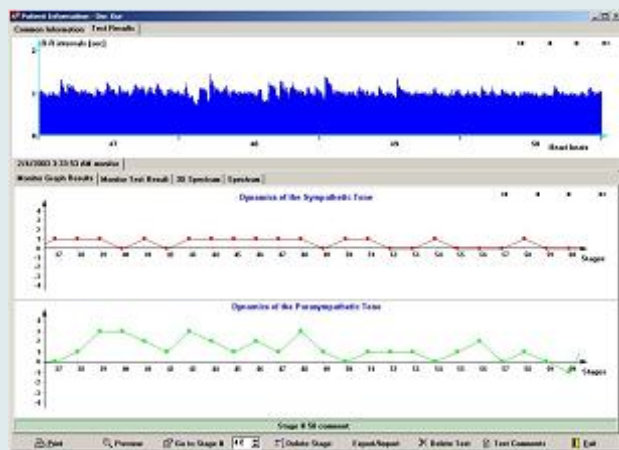
The algorithms used by Nerve-Express have been developed and tested for over twenty years in studies involving more than twenty thousand patients .

Nerve-Express implements a battery of three tests as the most comprehensive and informative combination of tests for ANS purposes:

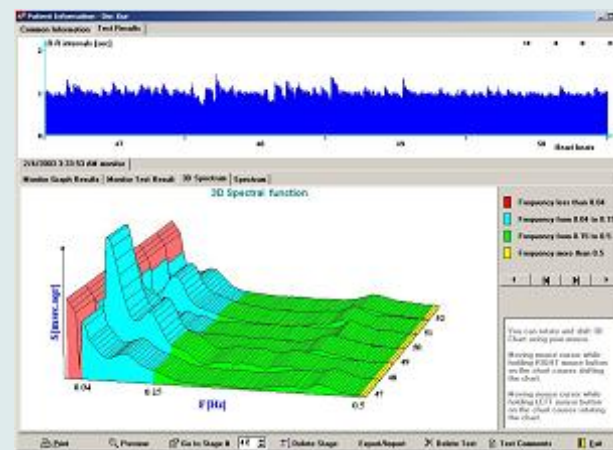
1. Orthostatic test as the initial method for ANS provocation;
2. Valsalva maneuver combined with Deep Breathing as the optimal method for revealing the hidden abilities of the Autonomic function and distinguishing between chronic and temporary abnormalities;
3. Real-time Nerve-Monitor test as the ultimate method for ANS assessment in long-term therapy, continuous monitoring (especially, under anesthesia/intensive care), research and experimentation.

Assessment of the Physical Fitness Level during Orthostatic test

All three tests may be conducted on a single patient as well as on two patients simultaneously for comparative purposes (with a special cable).



"Real-time" Autonomic Assessment



3D Spectral function in "Real-time"