Max Pulse Definitions

Accelerated Plethysmograph (APG): APG test measures the blood circulation state and aging level of blood vessels in regards to vascular elasticity and hardening, through the signal at the finger tip. APG is also called the "final analysis" wave form. APG uses the second derivative of the waveform of the digital photo-plethysmograph to stabilize the baseline and to separate components of the waveform more clearly and distinctly.

Arterial Elasticity (AE): Analyzes the blood circulation, the vascular elasticity and resistance of the vessels. It detects early cardiovascular disease like atherosclerosis and peripheral circulation dysfunction. AE analyzes the c/a value out of the basic waves. It means the elasticity of arteries and if the elasticity is bad, its value moves from (+) value to (-) value.

Differential Pulse Wave Index (DPI): Represents the overall health of the cardiovascular system. DPI is the main indicator that represents the aging of arteries. => - b + c + d / a. It means if the (-) value is lower, the vascular aging degree is going bad.

Eccentric Constriction (EC): Represents the contraction power of vessels from the left ventricle. EC analyzes the b/a value out of basic waves. If the cardiac output is higher, the vascular state is good and the result value should be bigger in (-) value.

Frequency Domain: The HRV is comprised of multiple frequencies. Frequency domain method analyses this waveform by looking at the different frequency components of the waveform. The two main frequency components that represent ANS activity are the low frequency (LF) components (0.04 to 0.15Hz) and the high frequency (HF) components (0.15 to 0.4 Hz). Frequency domain measures confirm that the LF and HF oscillatory components are relative indices of cardiac sympathetic and vagal activity respectively and HF and RMSSD indicate parasympathetic activity.

Heart Rate Variability (HRV): HRV is the degree of fluctuation in the length of intervals between heart beats. HRV measures the overall health status and the autonomic nervous system function that is composed of sympathetic nerve system (SNS) and parasympathetic nerve system (PNS). SNS plays a role of an accelerator in our body while PNS is functioning as a brake. If one of them is broken, it will be easier to get cardiovascular diseases as ANS is not balanced. Heart rate is determined by the SA Node and ANS (Autonomic Nervous System) function. For healthy people, HRV shows complicated and irregular heart rates while unhealthy people have simple and regular heart rates. HRV has attracted much attention and has been researched in relation with various conditions and diseases in more than 7,000 copies in Pubmed. You can search the Pubmed site at: (http://www.ncbi.nlm.nih.gov/Pubmed).

HF: High Frequency (0.15 to 0.4HZ) See Frequency Domain.

LF: Low Frequency (0.04 to 0.15HZ) See Frequency Domain.

Parasympathetic Nerve System (PNS): The PNS is responsible for stimulation of Activities that occur when the body is at rest ("Rest and Digest") including sexual arousal, salivation, lacrimation (tears), urination, digestion, and defecation. The PNS functions as a break in the ANS.

Plethysmograph (PTG): The "basic" wave form signal that indicates pulsation of chest wall and great arteries followed by heart beat. It measures the changes in blood volume within an organ or whole body.

Power Spectrum Analysis: Power spectrum analysis of the heart rate fluctuations provides a quantitative noninvasive means of assessing the functioning of the short-term cardiovascular control systems. The sympathetic and parasympathetic nervous activity makes frequency-specific contributions to the heart rate power spectrum.

Remaining Blood Volume (RBV): It is the remaining blood volume in the vessels after systolic contraction on the heart. If the blood vessels are healthy, there is little remaining blood volume. RBV analyzes the d/a value out of the basic waves. If the vascular state is better, the remaining blood volume will be lower and it describes (-) value. But, if the aging degree is in progress, EC will be weakened and RBV will remain high. It is an important indication of classifying the wave type.

Sympathetic Nerve System (SNS): Its general action is to mobilize the body's resources under stress; to induce the fight or flight response. It is however constantly active at a basal level to maintain homeostasis. SNS plays a role of an accelerator in the Autonomic Nervous System (ANS).

TP: Total Power is the combination of the three frequencies (VLF, LF, and HF).

VLF: Very Low Frequency.