



CardioCheck™

Empowering Hearts, Inspiring Lives



“Empowering Hearts, Inspiring Lives”

With

CardioCheck

Heart Rate Variability & Accelerated Photoplethysmography

Cardiovascular Wellness Index (CWI)

What is CardioCheck?

The future of Health care ANS & Cardiovascular screening

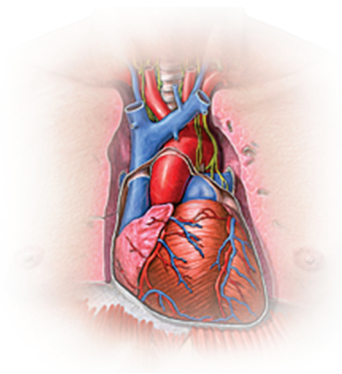
The CardioCheck provides measurements using Heart Rate Variability & Accelerated Plethysmography to access overall Cardiovascular and Autonomic Nervous System Function.

It is a useful tool in assisting health-care practitioners in the early detection of cardiovascular related issues. The test will also help assess nutraceutical & pharmaceutical needs.

Through periodic screening and treatment, it is able to monitor the effectiveness of changes and relate them to the person's cardiovascular, autonomic, and overall health status.

► We Analyze

- ❑ Ageing of blood vessel and circulation
- ❑ Elasticity of Artery and Peripheral (Arterial Stiffness)
- ❑ Chronic Fatigue & Electro-cardiac stability
- ❑ Autonomic Nervous system Analysis
- ❑ Overall cardiovascular health
- ❑ Physical/Mental stress assessment
- ❑ Heart Rate variability



► Symptoms of Autonomic Nerve system



- ❑ Functional disorder and lack of nutritional balance
- ❑ Hormone imbalances and intestinal lining function



- ❑ Feel continuous chronic fatigue continuously
- ❑ Under depression, anxiety and mental stress



- ❑ Obesity and neurogenic stomach ache
- ❑ Diabetic mellitus, headache and migraine

► Symptoms of Arterial circulation disorder



- ❑ Numb feeling or cramp in extremity
- ❑ Peripheral blood circulation disorder
- ❑ Arteriosclerosis



Why should you use CardioCheck ?

Most reliable device to detect Cardiovascular diseases

✔ Usability



- Simple, User-friendly, Non-invasive (US-FDA Class 2)
- Widely applicable from Pediatric to Adult
- Easily adaptable towards general and specific requirements of almost all medical branches
- Presents a quick and reliable supplementary assessment of basic health risk factors

✔ Instead of High technology we used Uniqueness



- World-Top class HRV & APG Analysing Technology
- Provide both Asian & Western Clinical Reference
- International medical certificates(US-FDA, CE, CFDA, MHLW)

✔ Medical Background



- Researched for over 20 years internationally
- Acquired Patents of ANS & APG Analysis in Japan & Korea
- Developmented on the basis of more than 200 clinical papers including SCI Level

► Applicable Markets

- Clinics for Cardiovascular Disease Diagnosis
- Functional Medicine with the Nutritional Supplements
- General Practitioners and physicians
- Stress Release Center (Yoga, Meditation)
- Public Offices or Public Service Centers
- Health check-up as a pre-screening of overall health
- Dietary Supplements with the pre/post therapy



Main Function

We Provide New Paradigm of Non-Invasive Diagnostics in 1 Minute Only!

► Heart Rate Variability

Heart rate variability (HRV) is the physiological phenomenon of the variation in the time interval between consecutive heartbeats in milliseconds.

Higher HRV has been found to be associated with reduced morbidity and mortality.

- ▣ Analyze autonomic nerve system function
- ▣ Assess chronic stress condition and psychosomatic disorder
- ▣ Physical and mental stress assessment
- ▣ HRV is commonly accepted as a non invasive marker of ANS activity.

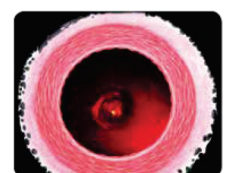
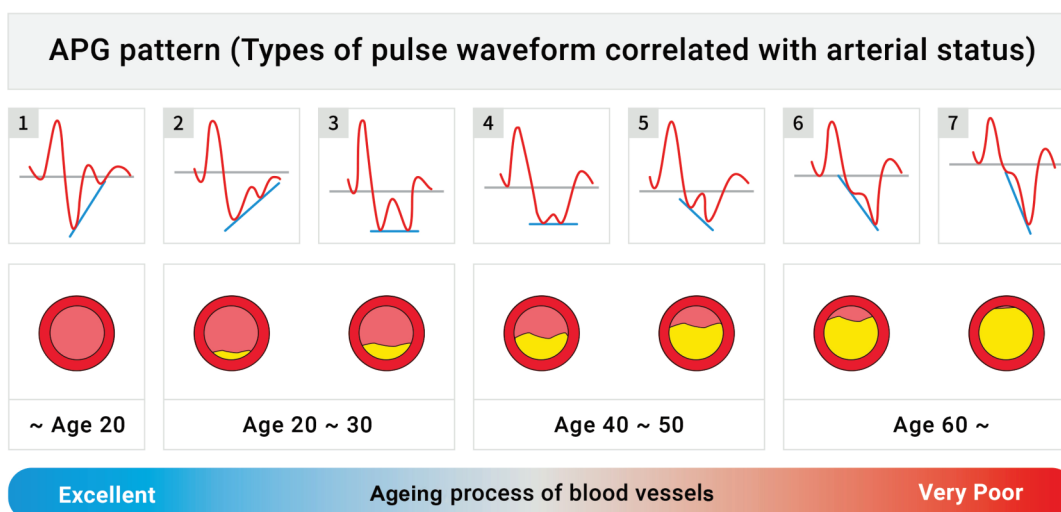
► Accelerated Plethysmography

Acceleration plethysmography (APG) uses the second derivative of the waveform of the digital photoplethysmography to stabilize the baseline and to separate components of the waveform more clearly than the first derivative.

APG is a non-invasive technique for measuring the amount of blood flow present or passing through, an organ or other part of the body.

- ▣ It measures the blood flow from the heart to the peripheral vessels.
- ▣ Check the ageing of blood vessels and circulation.
- ▣ Analyze the elasticity of the artery and peripheral elasticity.

► APG Wave Types By Vascular Ageing



Healthy Artery



Abnormal Artery With Arteriosclerosis

DPA Analysis [Optional]

Designed For Cardiologist

► Digital Pulsewave Analysis [Optional]

Digital Pulsewave Analysis (DPA) provides information on arterial wall stiffness and estimates biological age of arteries. It also provides an assessment of how the walls of the arteries expand and relax when the heart beats and the blood travels through the arteries.

- Analyze the elasticity of aorta and left ventricular ejection ability
- Indicates the nephrology of arterial walls
- Arterioles elasticity and dilatation in the vessels
- LV ejective force, compliance of large artery and dilation of small artery
- Examine the systolic and diastolic phases of heart



DPA Result

Deep Breathing/30:15 Test [Optional with HR Sensor]

Designed For Diabetic Autonomic Neuropathy



DP & 30:15 Result

► Deep Breathing

It measures the difference between the maximum and minimum HR while maintaining deep respiration.

► 30 : 15 Ratio

It is a ratio of the 15th and 30th RR interval after changing the position from resting to standing.

- Analyze the heart rate variability by 3 electrodes
- HR response to deep breathing
- HR response to standing up by 30:15 ratio
- Early detection of autonomic nerve function disorder
- Diagnose the diabetic autonomic neuropathy

What CardioCheck Screening Will Tell you - HRV

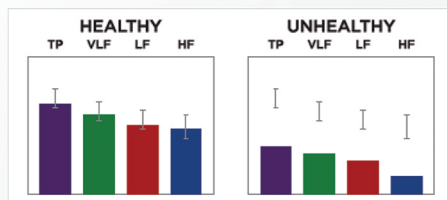
FREQUENCY DOMAIN ANALYSIS:

TP: Total Power, combination of the 3 frequencies

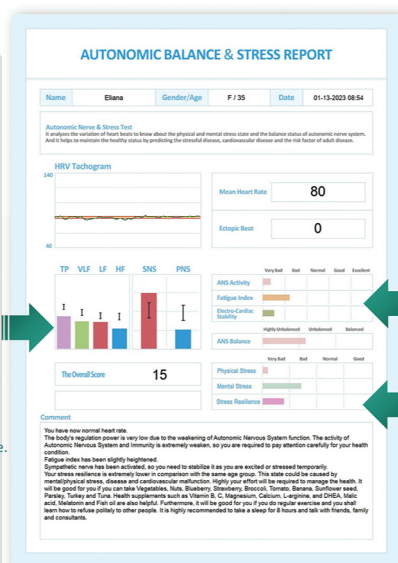
VLF: Very Low Frequency

LF: Low Frequency

HF: High Frequency



Reduction of TP: Decreased ANS function, decrease in regulatory competence and a decrease in the ability to cope with environmental change.
Reduction of VLF: Decrease in the body's ability to regulate body temperature and hormone levels.
Reduction of LF: Loss of energy, fatigue, insufficient sleep and lethargy.
Reduction of HF: Chronic stress, aging, reduced electrical stability of the heart.



ANS Activity

ANS Activity: It indicates the activity of Autonomic Nervous System function and its regulation competence.

Electro-Cardiac Stability

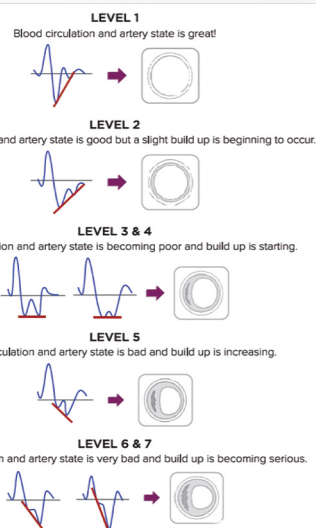
Electro Cardiac Stability: It is decreased because of chronic stress and lowered Electro Cardiac Stability may make a risk of cardiac disorder.

Stress Resilience

Stress Resilience: As an indicator of how much we are adaptable to the stress, it will be greatly resistant to the stress in the healthy people under the same stress while it will be lower in resistance for the unhealthy people if they lose the resistant ability in the body or have a weak autonomic nerve system function.

What CardioCheck Screening Will Tell you - APG

Wave Type: It displays the distribution of the aging level in percentage for your blood vessel by 7 Types. Among the 7 types, the most one will be the representative type. However, the distribution percentages of other types also has to be considered to judge the blood vessel condition more correctly. (The percentages may be spread out or 100% in a given wave type)

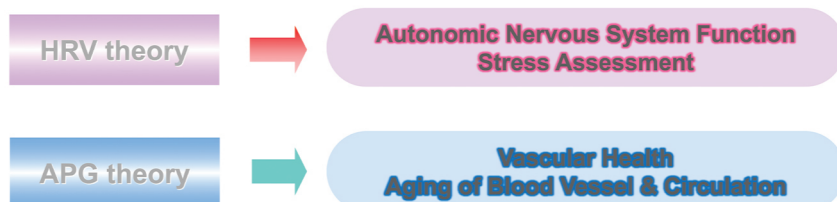


ITEM	MEASURED VALUE	SUB-OPTIMAL	NORMAL	OPTIMAL
AE	51			
PE	98			

Arterial Elasticity: It shows the degree of the blood flow and contraction power of artery from the heart to other parts of the body.

Peripheral Elasticity: It shows the degree of the blood circulation of peripheral blood vessel delivering to the furthest from the heart.

Background Theory



Clinical Research

How to Build ASIAN HRV Reference?

1. Clinical reference research at 8 major hospitals in Korea

- Pusan University Hospital
- Donga University Hospital

- Seoul Baek Hospital of Inje University
- Eulgy University Hospital

- Ihwa University Hospital
- Dankuk University Hospital

- Ghil University of Ghachun Medical College
- Sungshim University of Hanlim University

2. Clinical research for 2 years (from May 2001 to June 2003)

3. Acquired 3,600 normal cases

4. Build ASIAN HRV Reference for the 1st in the world and get its Paten

Global Business Partners

SAMSUNG



Specification

Features	1. Heart Rate Variability Analysis 2. Autonomic Nervous System Assessment 3. Pulse Wave, Accelerated Pulse Wave Analysis	
Display Parameters	- HRV (Mean HR, TP, VLF, LF, HF) - ANS (The Balance of SNS & PNS, ANS Activity, Fatigue Index, Electro-Cardiac Stability, Stress Score, Physical/Mental Stress, Stress Resilience) - Type of Blood Vessel & Ageing - Arterial Elasticity & Peripheral Elasticity - Digital Pulse Wave Analysis [Optional] - 30 : 15, Deep Breathing [Optional]	
H/W Spec.	1. Support O/S - Win7/32bit and above 2. Size (W x D x H) - 150mm x 130mm x 35mm	3. Weight - About 650g 4. Power - 100~220V, 50/60Hz, 0.4A
Performance	1. PPG - Measurement range: 30 ~ 200BPM - Accuracy: $\pm 2\%$ - Wave-out time: 2sec	2. Heart Rate Sensor [Optional] - Sensor : 3 Electrode leads - Measurement range: 30 ~ 200BPM - Accuracy: $\pm 2\%$
Certificates	    	



ANANTAA
GSK | GROUP



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