MEDICORE

Autonomic Nervous System Cardiovascular Health Analyzer

"In 1 Minute Identify Patients At Risk"

SA-3000P

Heart Rate Variability & Accelerated Photoplethysmography
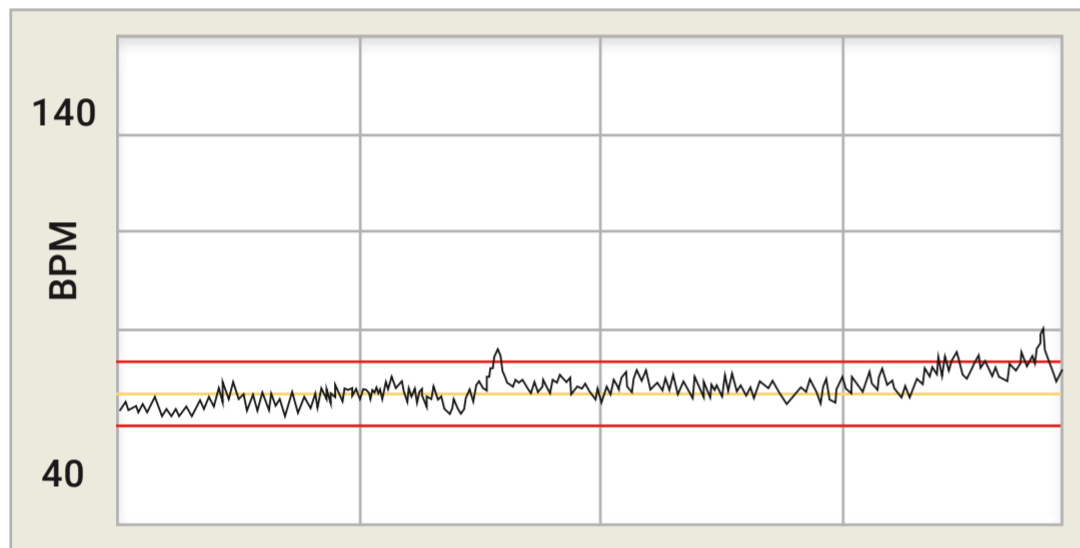
Autonomic Nervous System Testing

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

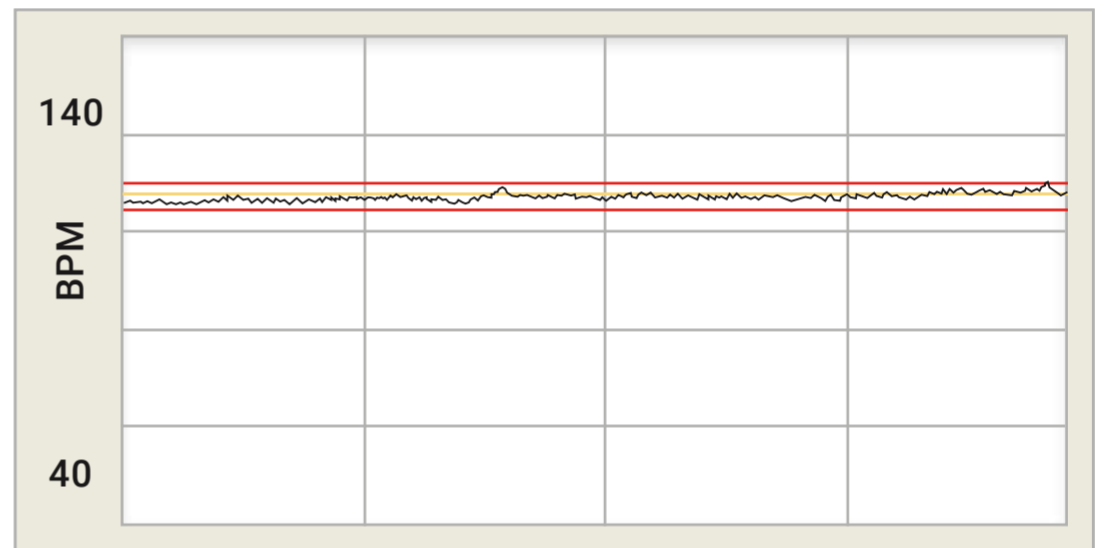### ▶ HRV(Heart Rate Variability)

HRV is the physiological phenomenon of the variation in the time interval between consecutive heartbeats in milliseconds. HRV is regulated by the autonomic nervous system (ANS), and its sympathetic and parasympathetic branches, and it is commonly accepted as a non-invasive marker of ANS activity.

> *"Higher HRV has been found to be associated with reduced morbidity and mortality, and improved psychological well-being and quality of life."*

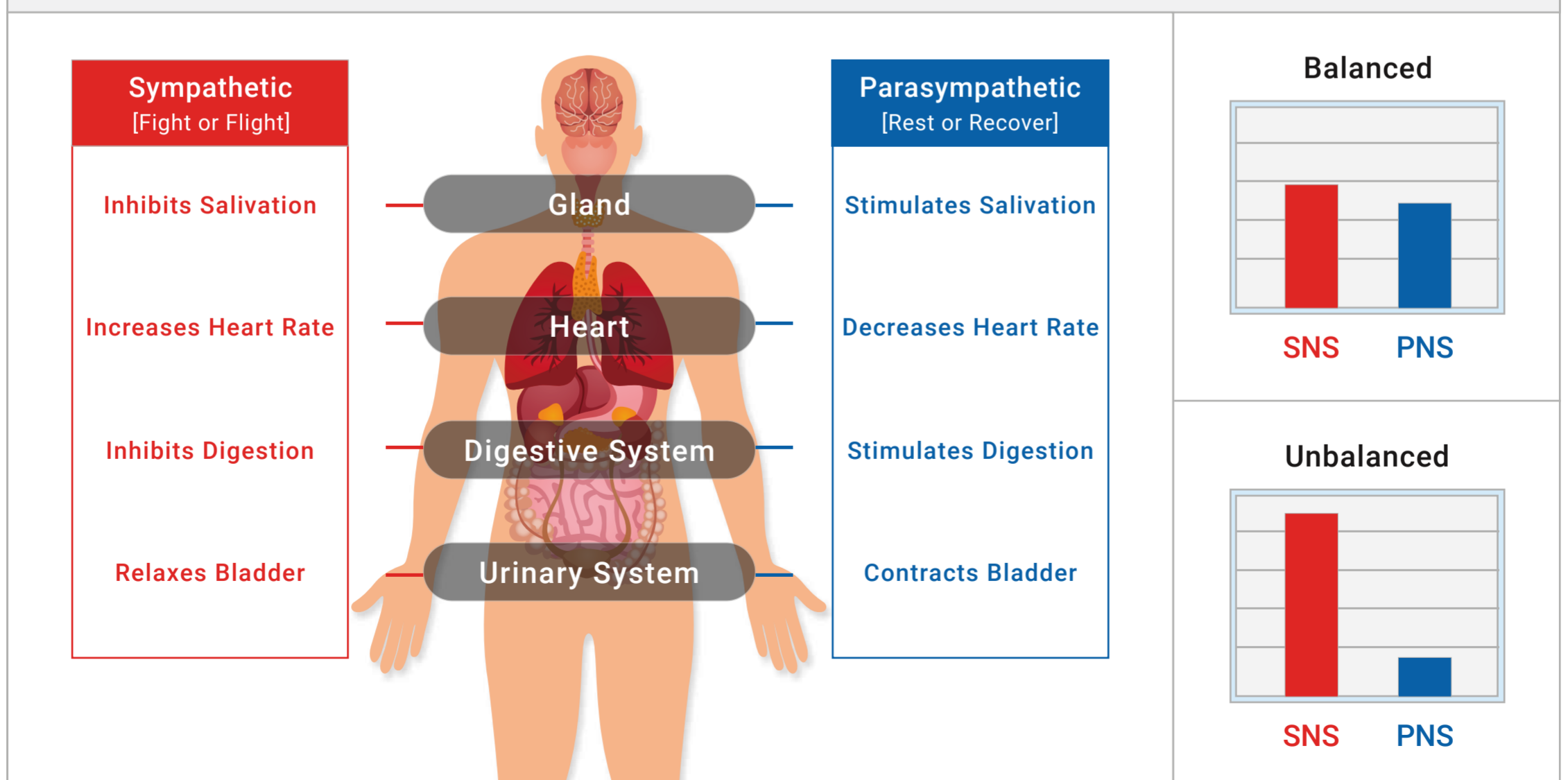### ▶ HRV Reflects Autonomic Nervous System

Healthy HRV

Unhealthy HRV

Autonomic Nervous System & Homeostasis

Sympathetic [Fight or Flight]		Parasympathetic [Rest or Recover]
Inhibits Salivation	Gland	Stimulates Salivation
Increases Heart Rate	Heart	Decreases Heart Rate
Inhibits Digestion	Digestive System	Stimulates Digestion
Relaxes Bladder	Urinary System	Contracts Bladder

Balanced

SNS   PNS

Unbalanced

SNS   PNS

HRV is the Most Reliable Index & Window to the Autonomic Nervous System!

SA-3000P

The Future of Health Care
## ANS & Cardivacular Screening

▶ SA-3000P?

SA-3000P provides measurements using Heart Rate Variability & Accelerated Plethysmography to access overall Cardiovascular and Autonomic Nervous System Function.

This FDA cleared equipment is very useful tool in assisting medical practitioners in the early detection of Cardiovascular & Autonomic related issues.

In 1 Minute Identify Patients At Risk for Sudden Death, Silent Heart Attack, Hypertension, Syncope, Cardiac Autonomic Neuropathy, Diabetic Autonomic Neuropathy, Vascular Abnormalities and other Hidden Diseases.

▶ We Analayze

- ▫ Heart Rate Variability [Raw Data Available]
- ▫ Comprehensive Autonomic Nervous System Analysis
- ▫ Physical/Mental Stress Assessment
- ▫ Chronic Fatigue & Electro-Cardiac Stability
- ▫ Overall Cardiovascular Health
- ▫ Aging of Blood Vessel & Circulation
- ▫ Elasticity of Artery & Peripheral (Arterial Stiffness)
- ▫ Respiratory Sinus Arrhythmia Training
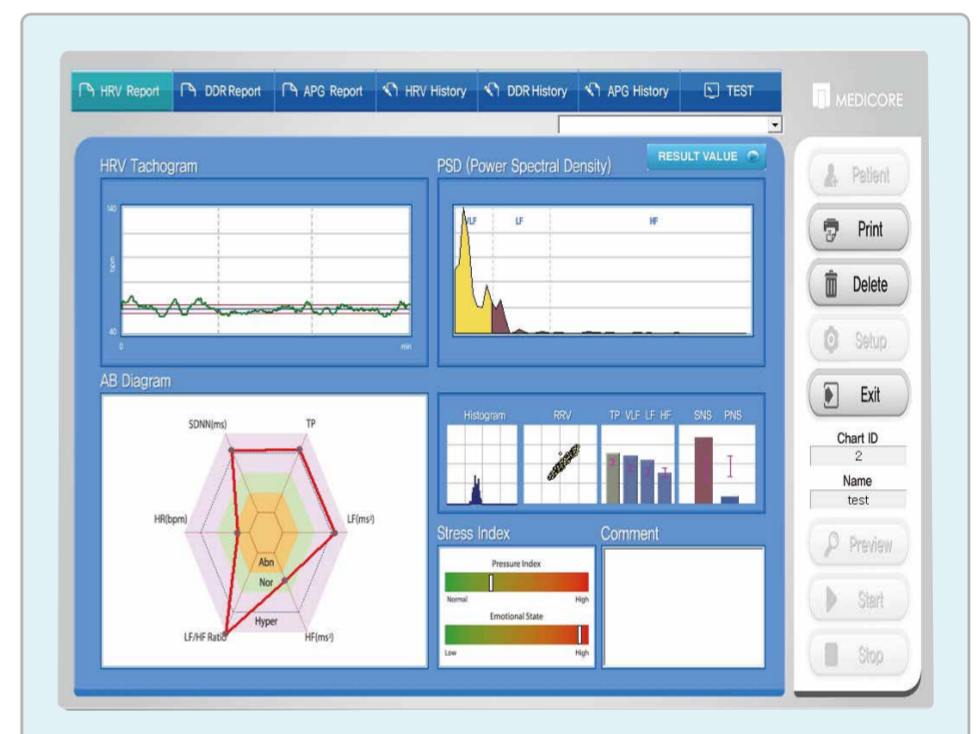
▶ Why Shoud You Use SA-3000P?

⊘ Usability

- ▫ Simple, User-friendly, Non-invasive (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

⊘ High-Technology & Reliability

- ▫ World-Top Class HRV & APG Analysis Technology
- ▫ Provide both Asian & Western Clinical Reference in the world only
- ▫ International medical certificates (CE, FDA, CFDA, MHLW)

⊘ Medical Background

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

RSA Training

Recover Your Autonomic Balance & Function

▶ RSA?

Respiratory sinus arrhythmia (RSA) is a natural variation in heart rate that occurs during the respiratory cycle. It is characterized by the heart rate increasing during inspiration and decreasing during expiration. This phenomenon is part of the normal functioning of the autonomic nervous system, which controls various bodily functions, including heart rate.

▶ RSA Training?

RSA training is a form of biofeedback therapy that aims to help individuals gain conscious control over their heart rate variability by modifying their breathing patterns.

It involves teaching individuals to synchronize their breathing with their heart rate variations, specifically by increasing the amplitude of RSA, which is the natural variation in heart rate that occurs with respiration. (breathing in and out)
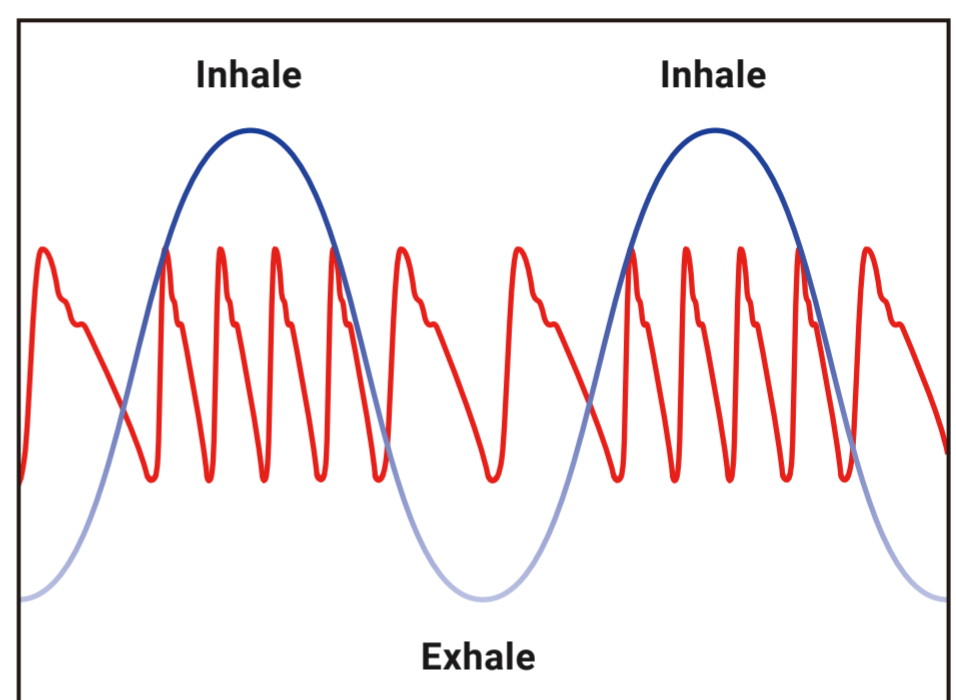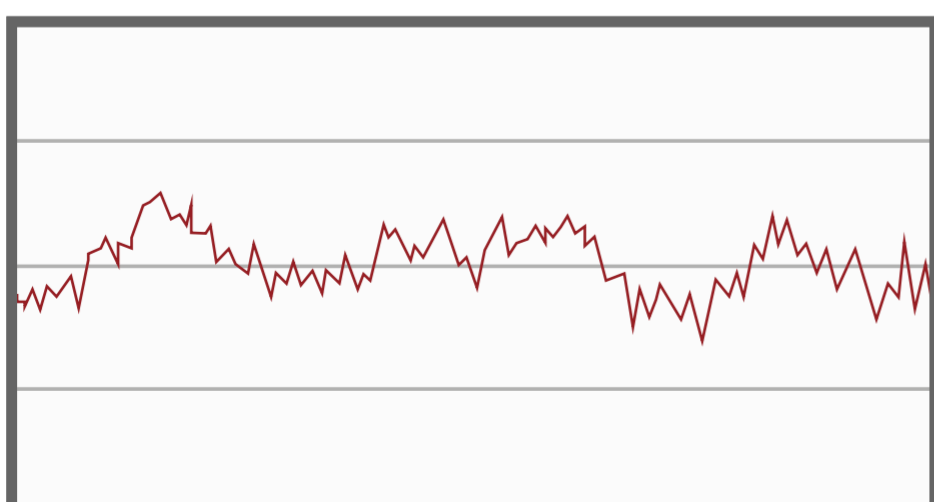

▶ Effects of RSA Training

- ▫ Improving Overall Emotional Well-being
- ▫ Reduction of Anxiety & Stress
- ▫ Improvement of Depression
- ▫ Maintaining the Balance of ANS & Relaxation
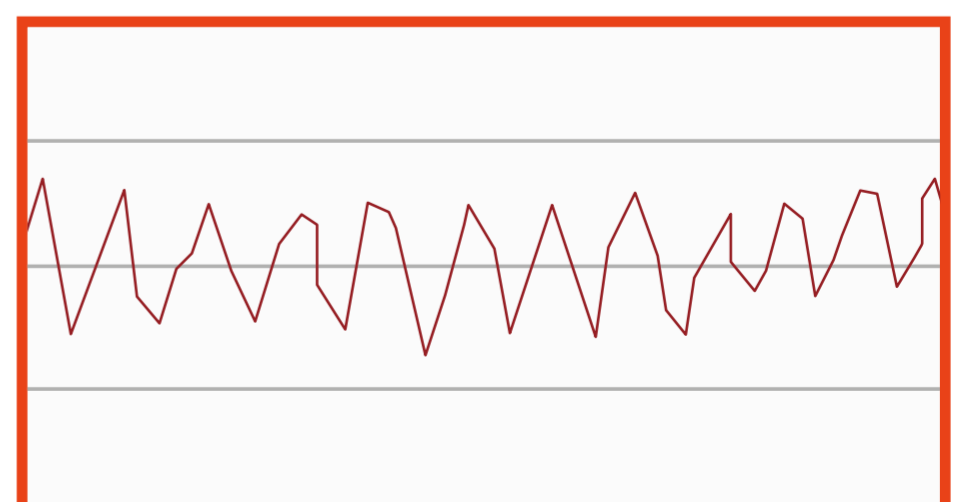- ▫ Increasing the Body Energy & Immunity

▶ Change of Heart Rate Pattern by Training

RSA Training

Unstable HR Pattern　　　　　**Stable HR Pattern**

How Old Is Your Artery?

Accelerated Photoplethysmography

APG (Accelerated Photoplethysmography) : 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.

Using a finger clip, the blood's pulse wave is followed from the time it leaves the heart and travels through the blood vessels down to the finger.

It is used to diagnose deep vein thrombosis & arterial occlusive disease. And, it has been applied for over 25 years and are currently being used in many clinical applications.

The APG waveform is a snapshot into the cardiovascular system and evaluates arterial elasticity (arterial stiffness), which is related to atherosclerosis.

▶ APG Test Analyzes

- Accelerated Plethysmography Analysis
- Aging of Blood Vessel & Blood Circulation
- 1~7 Type of Wave Patterns by Vascular Aging
- Arterial Elasticity (Arterial Stiffness)
- Peripheral Elasticity

▶ APG Waveform Analysis
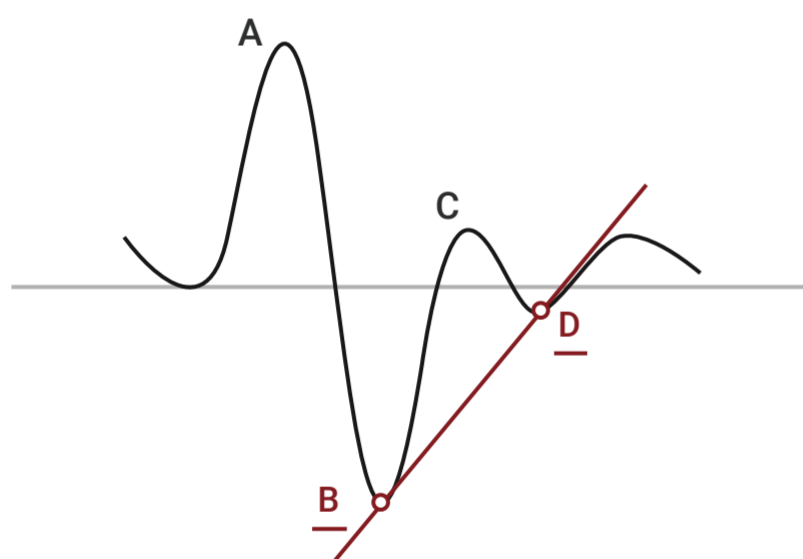
A : Basic point to evaluate APG waveform
B：Arterial Elasticity
C：Reference Value to evaluate B & D
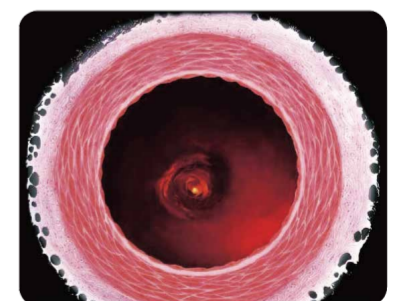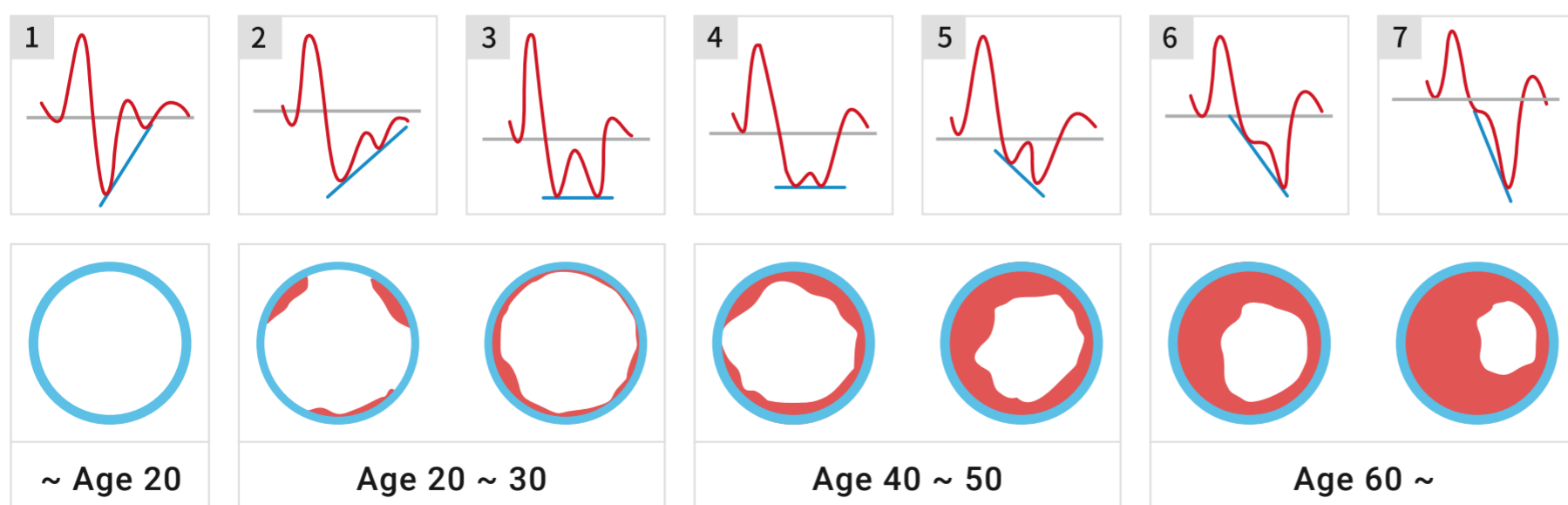**D：Peripheral Elasticity**
▣ The gradient of B & D point
- Overall vascular condition & aging
- Used to determine the type of waveform

▶ APG Wave Types By Vascular Aging

APG pattern (Types of pulse waveform correlated with arterial status)

1	2	3	4	5	6	7

~ Age 20	Age 20 ~ 30	Age 40 ~ 50	Age 60 ~

Excellent   Aging process of blood vessel   Very Poor

Healthy Artery

Abnormal Artery
With Arteriosclerosis

Specification

Features	1. Heart Rate Variability Analysis 2. Autonomic Nervous System Assessment 3. Pulse Wave, Accelerated Pulse Wave Analysis
Display Parameters	- HRV (Mean HR, SDNN, RMSSD, PSI, TP, VLF, LF, HF, LF Norm, HF Norm, LF/HF Ratio) - ANS (The Balance of SNS & PNS, ANS Activity, Fatigue Index, Electro-Cardiac Stability, Stress Score, Physical/Mental Stress, Stress Resilience) - Pulse Wave, Accelerated Photoplethysmography - Type of Blood Vessel & Aging - Arterial Elasticity & Peripheral Elasticity - RSA Training
H/W Spec.	1. Display - Type : 12.1" Color TFT LCD - Resolution : 1024 x 768 pixels 2. Size (W x D x H) - 450mm x 350mm x 138mm 3. Weight - About 7Kg 4. POWER - 100~240VAC, 50/60Hz, 1.0A
Performance	PPG - Measurement range: 30 ~ 200BPM - Accuracy: ± 2% - Wave-out time: 2sec
Certificates	FDA　　CE 0068　　CFDA　　GMP　　ISO 13485