At the Core of Medical Technology

www.medi-core.com

INTRODUCTION

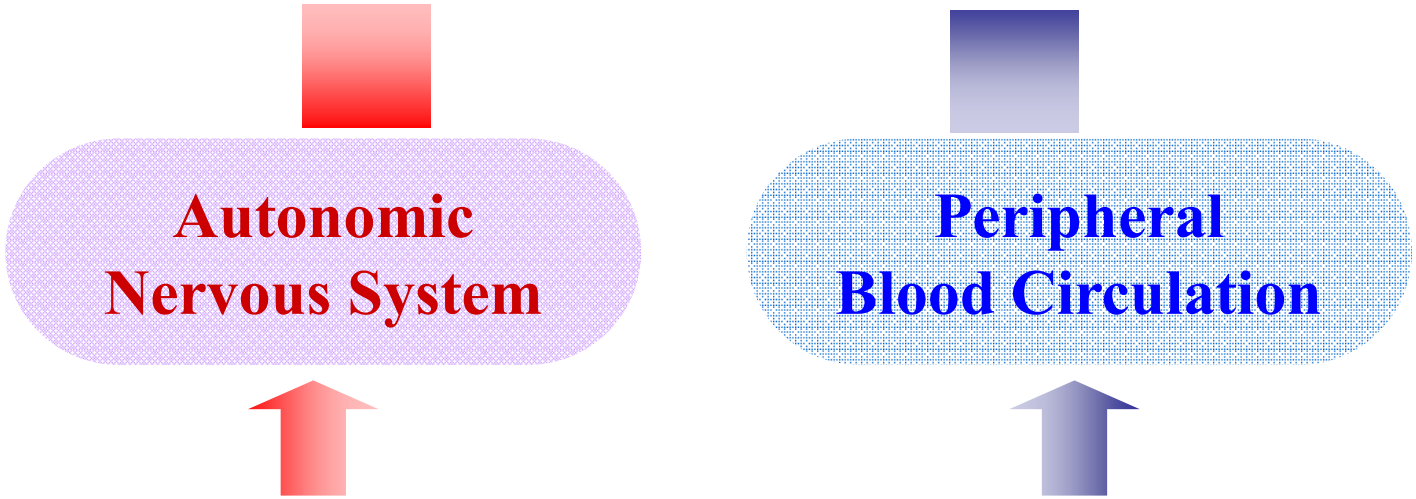
SA3000P

MEDICORE

Stress is the root of almost disease.

Diagnosis area

1. Stress assessment
2. Assessment of ANS function
3. Predictor of cardiovascular disorder
4. Arteriosclerosis / Peripheral circulation



HRV theory APG theory

What's the ANS ?

- **The Aims of ANS –〉 To maintain homeostasis**

- **ANS innervated in internal organs, regulates key functions involuntarily through its 2 branch, SNS (Sympathetic Nervous System) and PNS (Parasympathetic Nervous System)**
- **ANS acts for heart rate control including hormonal, enzymatic, respiratory, pulmonary, urinary and uterine neural control**

- **SNS : Metabolic energy supply to the cardiovascular system for blood pressure, heart rate and blood circulation control**
- **PNS : Organic protection, Energy conservation and restoration**

Branch	Heart beat	Blood vessel	Respiration	Pupil	Digestive liquor	Sweat
SNS	Accelerate	Constrict	accelerate	dilate	Inhibit	Accelerate
PNS	Inhibit	relax	Inhibit	contract	accelerate	Inhibit

Recently, a lot of people suffers with somatic diseases without pathological abnormality.
It's realized for the importance of the ANS

Diseases related to ANS dysfunction

Diabetes, Hypertension, Irritable Bowel Syndrome, Headache, Sudden Death after MI, Depression, Anxiety, Sleep disorder

ANS analysis method

HRV(Heart Rate Variability)

Gastrointestinal Motility Assessment

Analysis for the Neurotransmitter in blood

Electrophysiological Assessment

GSR (Galvamic skin response)

Pupillary reflex

Most Reliable ANS Index, HRV

There are about 12,000 papers on PubMed site till Apr. 2009

Who need the SA-3000P

Chronic fatigue

Excessive stress

Functional indigestion

Headache / Migraine

Obesity

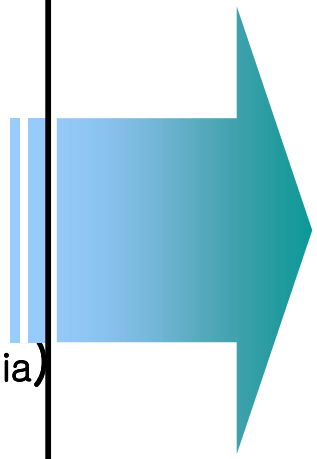
Adult diseases

(Hypertension, Diabetes, Hyperlipidemia)

Inertia, drowsy

Failure of

the concentration & memory



Disease prevention and management by objective diagnosis

Clinical research

▶ Oriental 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 Oriental Reference for the 1st in the world and get its Patent

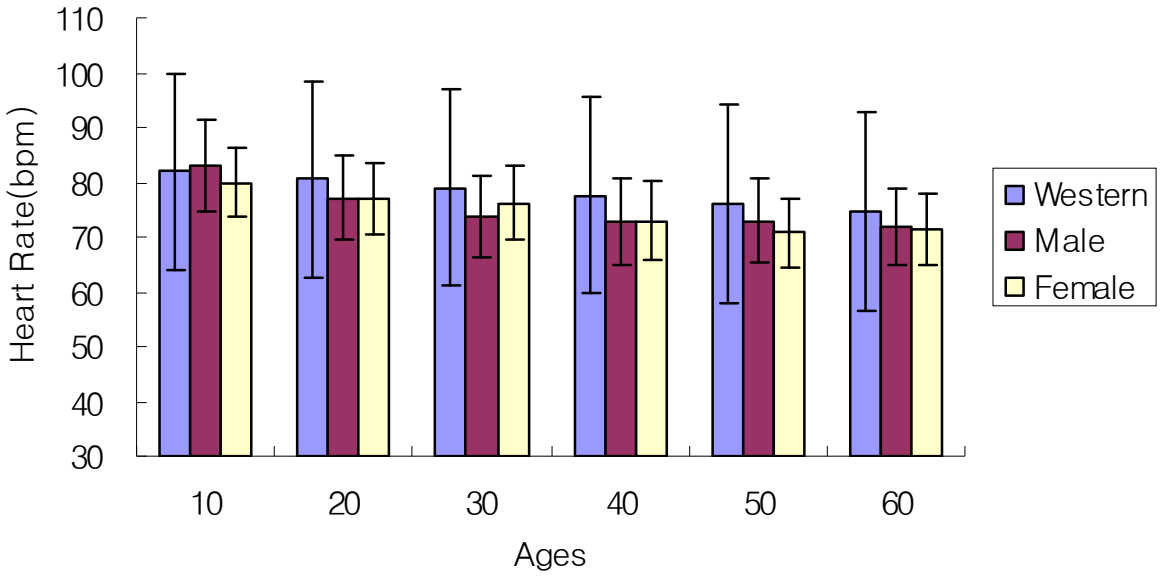
5. There are big difference of normal range between western and oriental people

Comparison for the REF

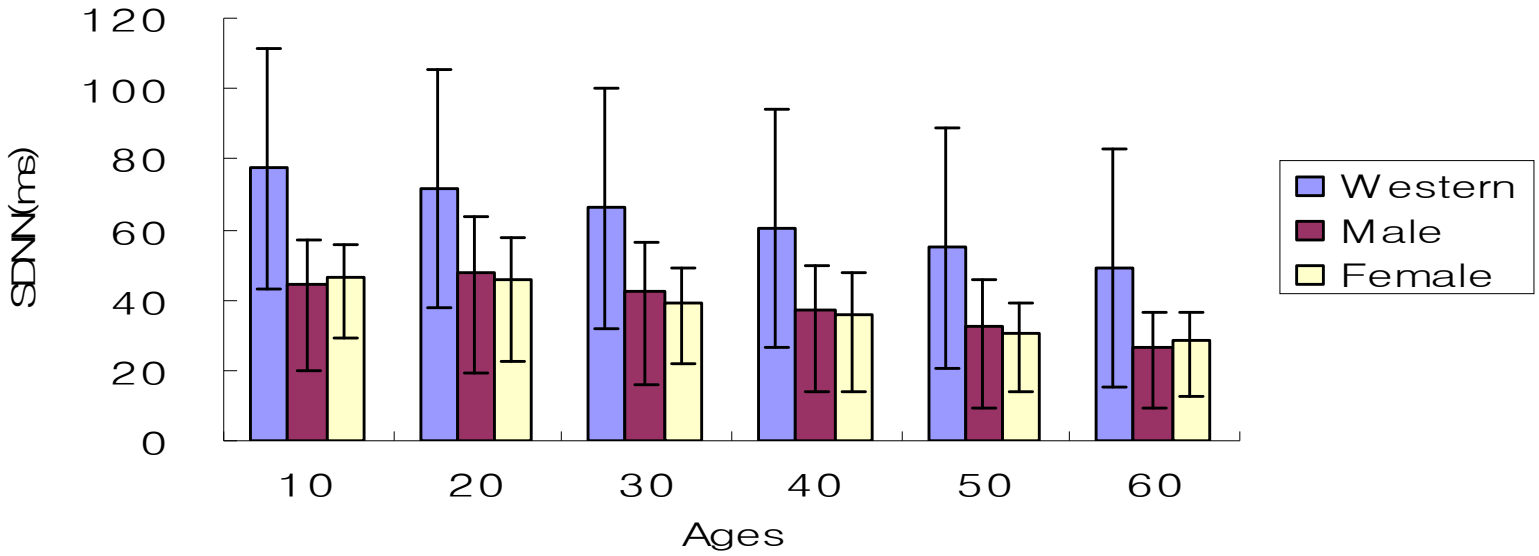
3239 people(M:1753, F:1486)

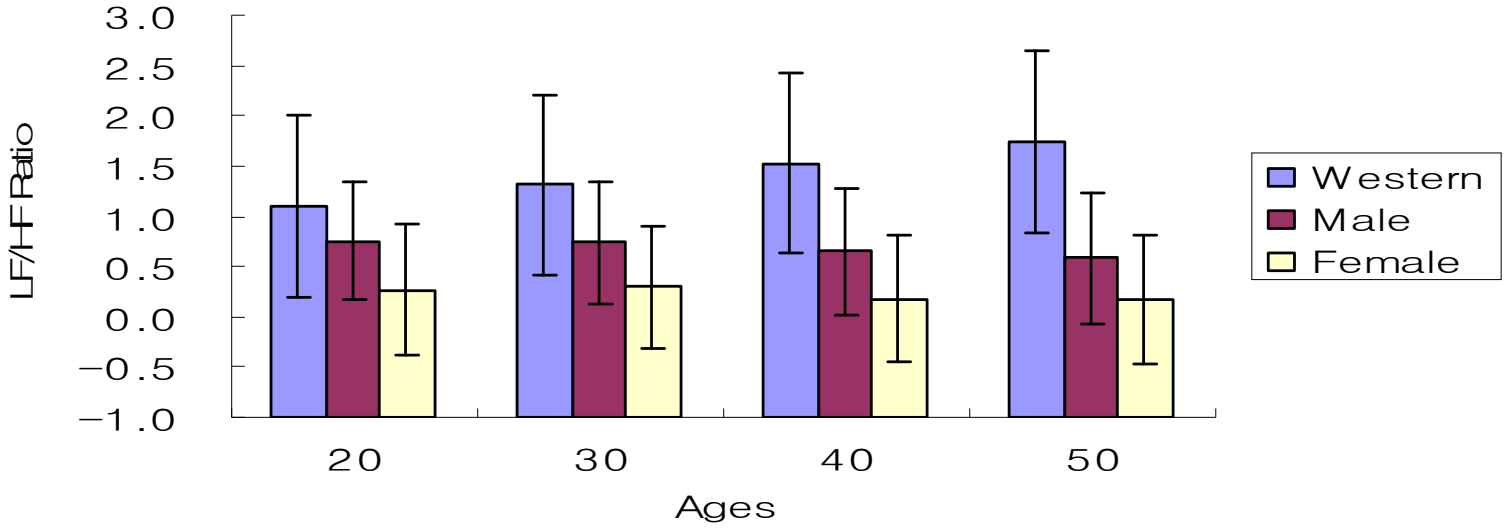
- **Male 1753 (40.8±11.4 years old)**
- **Female 1486 (39.7±12.8 years old)**

Comparing to the data of HeartMath Research Center in USA



Comparison for the REF





Patent

● Patent in Korea ●

특 허 증

CERTIFICATE OF PATENT

특 허 제 0493714 호
(PATENT NUMBER)

출원번호 (APPLICATION NUMBER) 제 2004-0097869 호
출 원 일 (FILING DATE:YY/MM/DD) 2004년 11월 26일
등 록 일 (REGISTRATION DATE:YY/MM/DD) 2005년 05월 26일

발명의명칭 (TITLE OF THE INVENTION)
자율신경 검사장치

특허권자 (PATENTEE)
주식회사 메디코아(110111-1******)
서울특별시 강남구 청담동 72-3

발명자 (INVENTOR)
등록사항란에 기재

위의 발명은「특허법」에 의하여 특허등록원부에 등록되었음을 증명합니다.
(THIS IS TO CERTIFY THAT THE PATENT IS REGISTERED ON THE REGISTER OF THE KOREAN INTELLECTUAL PROPERTY OFFICE.)

2005년 05월 26일

특 허 청장
COMMISSIONER, THE KOREAN INTELLECTUAL PROPERTY OFFICE

● Patent in Japan ●

特 許 証
(CERTIFICATE OF PATENT)

特許第４２４３６０５号
(PATENT NUMBER)

発明の名称(TITLE OF THE INVENTION)
自律神経検査装置

特許権者(PATENTEE)
大韓民国 ソウルシ カンナムグ チョンダムドン ７２－３ ルナビルヂング５
チュン
国籍 大韓民国
株式会社メヂコア

発明者(INVENTOR)
リ ベュン チュ
ジェン キ サム
キム ミン

その他別紙記載

出願番号(APPLICATION NUMBER) 特願２００５－２８６１２２
出願年月日(FILING DATE) 平成１７年 ９月３０日(September 30,2005)

この発明は、特許するものと確定し、特許原簿に登録されたことを証する。
(THIS IS TO CERTIFY THAT THE PATENT IS REGISTERED ON THE REGISTER OF THE JAPAN PATENT OFFICE)

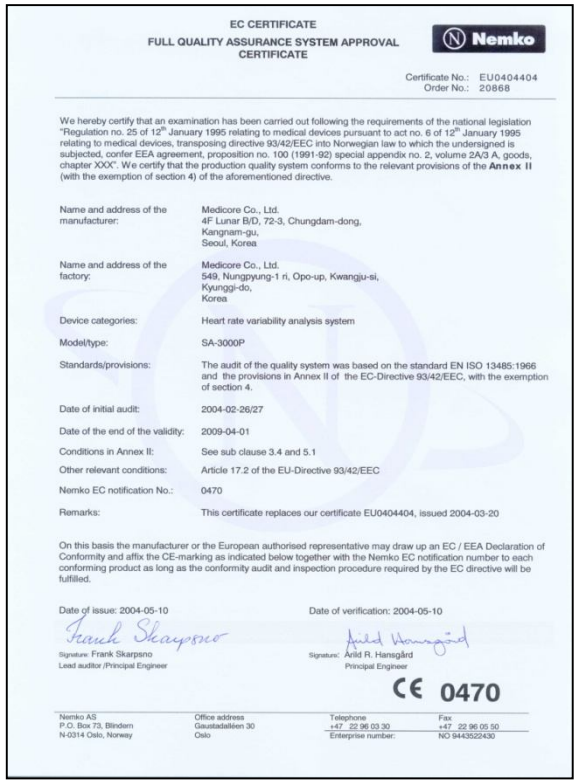
平成２１年 １月 ９日(January 9,2009)

特 許 庁 長 官(COMMISSIONER, JAPAN PATENT OFFICE)

鈴木隆史

Certificates

• CE •



EC CERTIFICATE
FULL QUALITY ASSURANCE SYSTEM APPROVAL CERTIFICATE

Nemko

Certificate No.: EU0404404
Order No.: 20868

We hereby certify that an examination has been carried out following the requirements of the national legislation "Regulation no. 25 of 12th January 1995 relating to medical devices pursuant to act no. 6 of 12th January 1995 relating to medical devices, transposing directive 93/42/EEC into Norwegian law to which the undersigned is subjected, confer EEA agreement, proposition no. 100 (1991-92) special appendix no. 2, volume 2A/3 A, goods, chapter XXX". We certify that the production quality system conforms to the relevant provisions of the **Annex II** (with the exemption of section 4) of the aforementioned directive.

Name and address of the manufacturer:	Medicore Co., Ltd. 4F Lunar B/D, 72-3, Chungdam-dong, Kangnam-gu, Seoul, Korea
Name and address of the factory:	Medicore Co., Ltd. 549, Nungpyung-1 ri, Opo-up, Kwangju-si, Kyunggi-do, Korea
Device categories:	Heart rate variability analysis system
Model/type:	SA-3000P
Standards/provisions:	The audit of the quality system was based on the standard EN ISO 13485:1966 and the provisions in Annex II of the EC-Directive 93/42/EEC, with the exemption of section 4.
Date of initial audit:	2004-02-26/27
Date of the end of the validity:	2009-04-01
Conditions in Annex II:	See sub clause 3.4 and 5.1
Other relevant conditions:	Article 17.2 of the EU-Directive 93/42/EEC
Nemko EC notification No.:	0470
Remarks:	This certificate replaces our certificate EU0404404, issued 2004-03-20

On this basis the manufacturer or the European authorised representative may draw up an EC / EEA Declaration of Conformity and affix the CE-marking as indicated below together with the Nemko EC notification number to each conforming product as long as the conformity audit and inspection procedure required by the EC directive will be fulfilled.

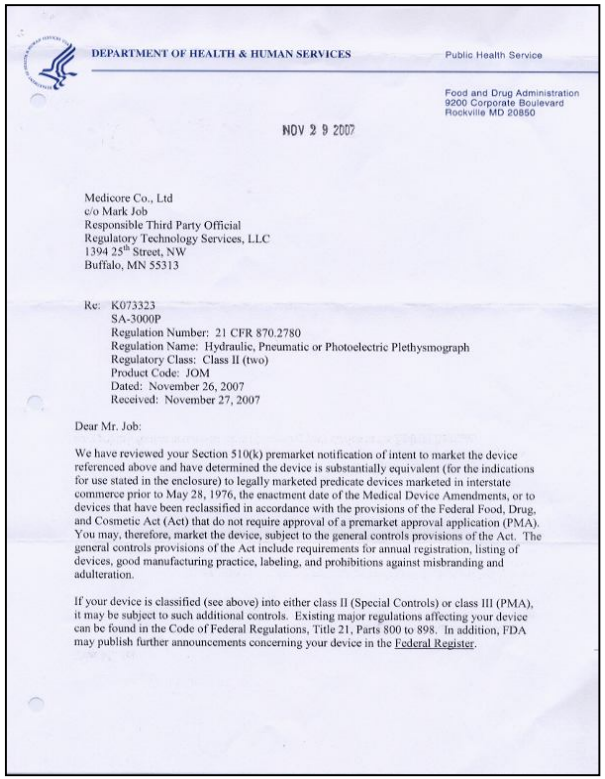
Date of issue: 2004-05-10
Signature: Frank Skarpsno
Lead auditor /Principal Engineer

Date of verification: 2004-05-10
Signature: Arild R. Hansgård
Principal Engineer

CE 0470

Nemko AS, P.O. Box 73, Blindern, N-0314 Oslo, Norway
Office address: Gaustadalléen 30, Oslo
Telephone: +47 22 96 03 30
Fax: +47 22 96 05 50
Enterprise number: NO 944352430

• FDA •



DEPARTMENT OF HEALTH & HUMAN SERVICES — Public Health Service

Food and Drug Administration
9200 Corporate Boulevard
Rockville MD 20850

NOV 2 9 2007

Medicore Co., Ltd
c/o Mark Job
Responsible Third Party Official
Regulatory Technology Services, LLC
1394 25th Street, NW
Buffalo, MN 55313

Re: K073323
SA-3000P
Regulation Number: 21 CFR 870.2780
Regulation Name: Hydraulic, Pneumatic or Photoelectric Plethysmograph
Regulatory Class: Class II (two)
Product Code: JOM
Dated: November 26, 2007
Received: November 27, 2007

Dear Mr. Job:

We have reviewed your Section 510(k) premarket notification of intent to market the device referenced above and have determined the device is substantially equivalent (for the indications for use stated in the enclosure) to legally marketed predicate devices marketed in interstate commerce prior to May 28, 1976, the enactment date of the Medical Device Amendments, or to devices that have been reclassified in accordance with the provisions of the Federal Food, Drug, and Cosmetic Act (Act) that do not require approval of a premarket approval application (PMA). You may, therefore, market the device, subject to the general controls provisions of the Act. The general controls provisions of the Act include requirements for annual registration, listing of devices, good manufacturing practice, labeling, and prohibitions against misbranding and adulteration.

If your device is classified (see above) into either class II (Special Controls) or class III (PMA), it may be subject to such additional controls. Existing major regulations affecting your device can be found in the Code of Federal Regulations, Title 21, Parts 800 to 898. In addition, FDA may publish further announcements concerning your device in the Federal Register.

• SFDA •

中华人民共和国
PEOPLES REPUBLIC OF CHINA
医疗器械注册证
REGISTRATION CERTIFICATE FOR MEDICAL DEVICE
注册号：国食药监械(进)字 2004 第 2211449 号
REG. NO: SFDA(I) 20042211449

韩国 **Medicore:**

你单位生产的心率变异分析系统，经审查，符合医疗器械产品市场准入规定，准许注册。自批准之日起有效期四年。

特此证明。

Medicore:

This is to certify that the medical product **Heart Rate Variability Analysis System** manufactured by your company has been inspected by our office and is permitted to register on the Chinese market. This registration certificate is valid for four years from the date of issue.

国家食品药品监督管理局
State Food and Drug Administration
2004年8月20日

附　件：医疗器械产品注册登记表
ATTACHMENT: MEDICAL DEVICE REGISTRATION RECORD

1. H R V

Heart Rate Variability

What's the HRV

0.8 -> 1.0 -> 0.9 -> 1.0 (sec)
845 -> 1049 -> 911 -> 1023 (msec)

Autonomic Nervous System which affects the sinoatrial node, is changed every moment by internal or external environment.

HRV, heart rate variability is the degree of fluctuation in the length of the intervals between heart beats.

The History of HRV

- 18th Century Albrecht von Haller noticed heart beat not regular
- 1965 Hon & Lee noticed that the beat to beat interval changes are the first alteration before fetal distress occurs. R-R change precedes HR change
- 1971 Sayers and others focused on rhythm imbedded in beat-to-beat HR
- 1977 Wolf et al showed association of HR to sudden death post MI

The History of HRV

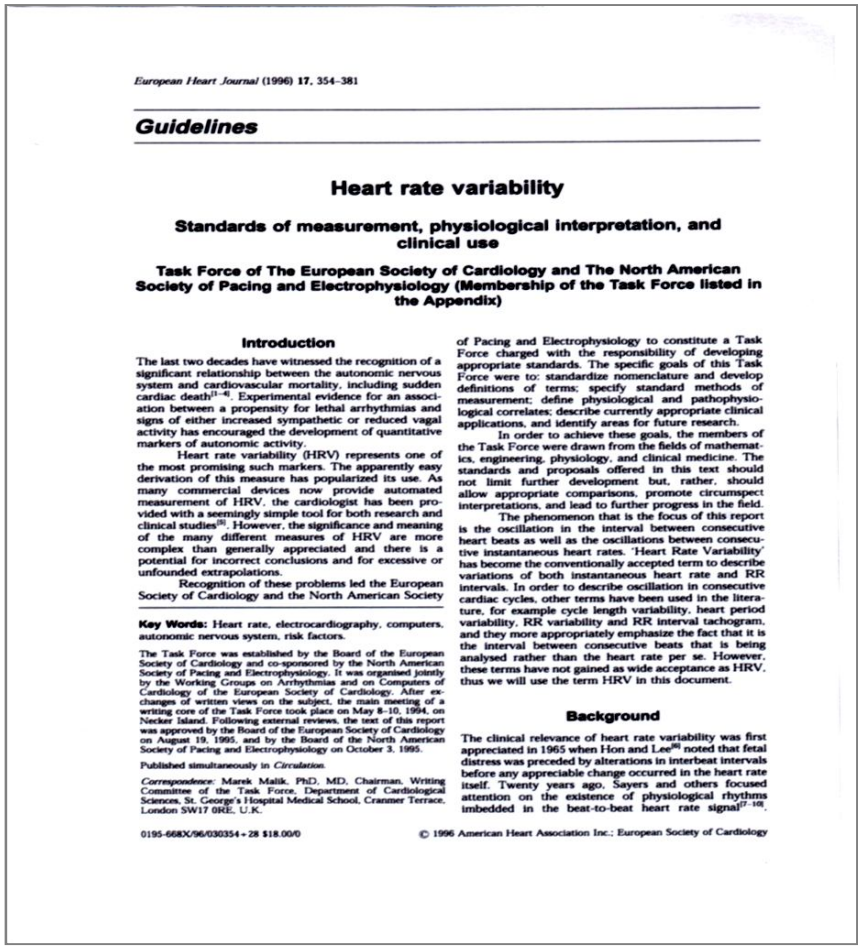
- **1981 Akselrod introduced Power Spectral Analysis (PSD)**
- **Late 1980's HRV confirmed strong predictor of mortality after an acute MI**
- **1996 Task Force publish Standards of Measurement for HRV**

  Circulation 1996:93:1043-1065
- **2000 publications over the last decade, found with a MEDLINE search, key word heart rate variability "HRV"**

The history of HRV

The Task Force (1996)

Establish guideline about HRV analysis in 1996



European Heart Journal (1996) **17**, 354–381

Guidelines

Heart rate variability

Standards of measurement, physiological interpretation, and clinical use

Task Force of The European Society of Cardiology and The North American Society of Pacing and Electrophysiology (Membership of the Task Force listed in the Appendix)

Introduction

The last two decades have witnessed the recognition of a significant relationship between the autonomic nervous system and cardiovascular mortality, including sudden cardiac death[1–4]. Experimental evidence for an association between a propensity for lethal arrhythmias and signs of either increased sympathetic or reduced vagal activity has encouraged the development of quantitative markers of autonomic activity.

Heart rate variability (HRV) represents one of the most promising such markers. The apparently easy derivation of this measure has popularized its use. As many commercial devices now provide automated measurement of HRV, the cardiologist has been provided with a seemingly simple tool for both research and clinical studies[5]. However, the significance and meaning of the many different measures of HRV are more complex than generally appreciated and there is a potential for incorrect conclusions and for excessive or unfounded extrapolations.

Recognition of these problems led the European Society of Cardiology and the North American Society of Pacing and Electrophysiology to constitute a Task Force charged with the responsibility of developing appropriate standards. The specific goals of this Task Force were to: standardize nomenclature and develop definitions of terms; specify standard methods of measurement; define physiological and pathophysiological correlates; describe currently appropriate clinical applications, and identify areas for future research.

In order to achieve these goals, the members of the Task Force were drawn from the fields of mathematics, engineering, physiology, and clinical medicine. The standards and proposals offered in this text should not limit further development but, rather, should allow appropriate comparisons, promote circumspect interpretations, and lead to further progress in the field.

The phenomenon that is the focus of this report is the oscillation in the interval between consecutive heart beats as well as the oscillations between consecutive instantaneous heart rates. 'Heart Rate Variability' has become the conventionally accepted term to describe variations of both instantaneous heart rate and RR intervals. In order to describe oscillation in consecutive cardiac cycles, other terms have been used in the literature, for example cycle length variability, heart period variability, RR variability and RR interval tachogram, and they more appropriately emphasize the fact that it is the interval between consecutive beats that is being analysed rather than the heart rate per se. However, these terms have not gained as wide acceptance as HRV, thus we will use the term HRV in this document.

Background

The clinical relevance of heart rate variability was first appreciated in 1965 when Hon and Lee[6] noted that fetal distress was preceded by alterations in interbeat intervals before any appreciable change occurred in the heart rate itself. Twenty years ago, Sayers and others focused attention on the existence of physiological rhythms imbedded in the beat-to-beat heart rate signal[7–10].

Key Words: Heart rate, electrocardiography, computers, autonomic nervous system, risk factors.

The Task Force was established by the Board of the European Society of Cardiology and co-sponsored by the North American Society of Pacing and Electrophysiology. It was organised jointly by the Working Groups on Arrhythmias and on Computers of Cardiology of the European Society of Cardiology. After exchanges of written views on the subject, the main meeting of a writing core of the Task Force took place on May 8–10, 1994, on Necker Island. Following external reviews, the text of this report was approved by the Board of the European Society of Cardiology on August 19, 1995, and by the Board of the North American Society of Pacing and Electrophysiology on October 3, 1995.

Published simultaneously in *Circulation*.

Correspondence: Marek Malik, PhD, MD, Chairman, Writing Committee of the Task Force, Department of Cardiological Sciences, St. George's Hospital Medical School, Cranmer Terrace, London SW17 0RE, U.K.

0195-668X/96/030354 + 28 $18.00/0

HRV STANDARD GUIDELINE

By ***The European Society of Cardiology & The North American Society of Pacing and Electrophysiology***

The concept of HRV

Under steady state condition, the heart rate is monotonously regular.

Old

* 1929 Walter B. Cannon : "homeostasis"
* Physiology – all cells, tissues and organs maintain a static or "steady-state" condition in their internal environment

continuous time series data from physiologic processes such as

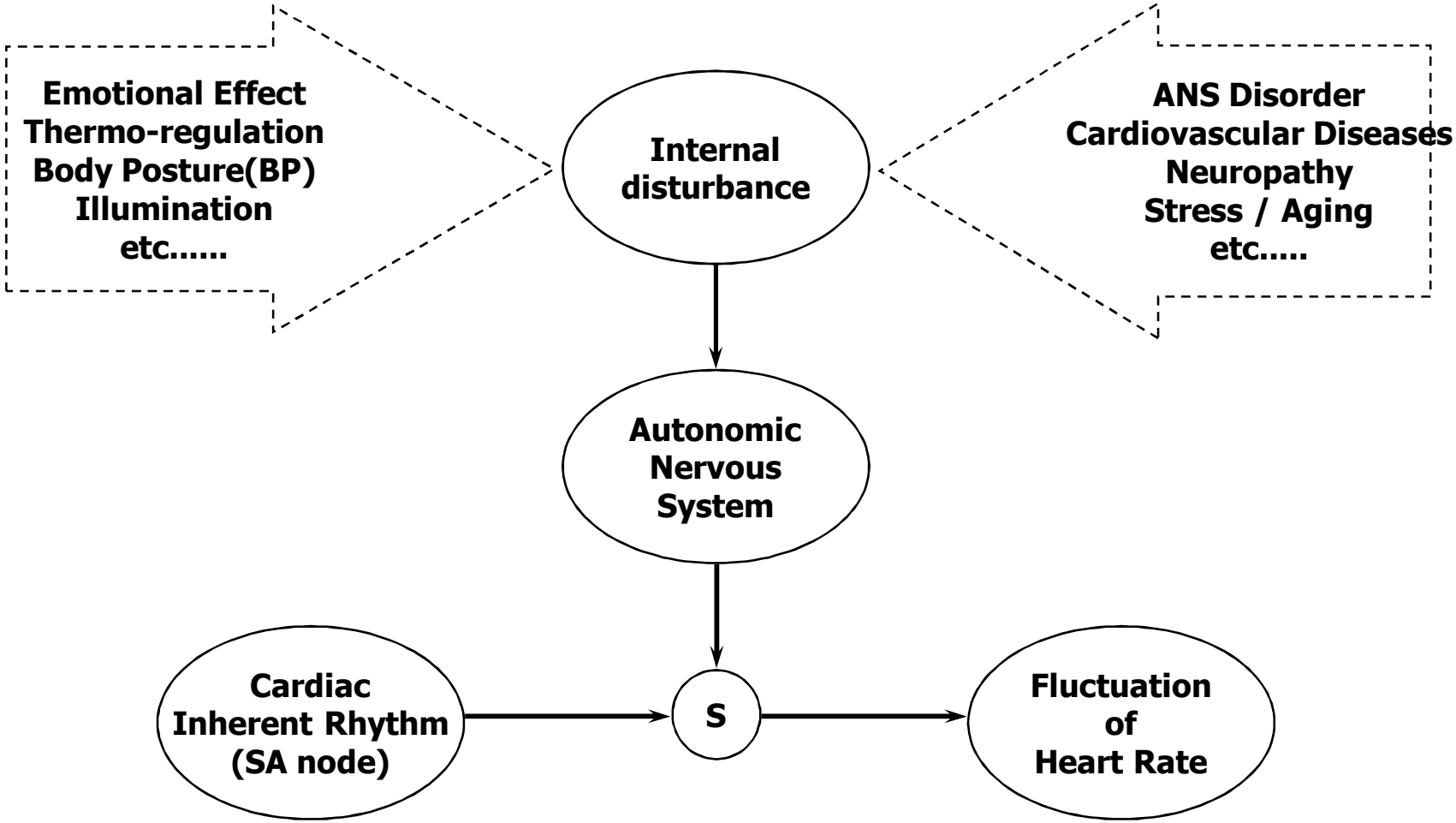
Heart rate,
Blood pressure,
Nerve activity…

New concept

- Biological Process vary in a complex and nonlinear way even during "steady-state" condition

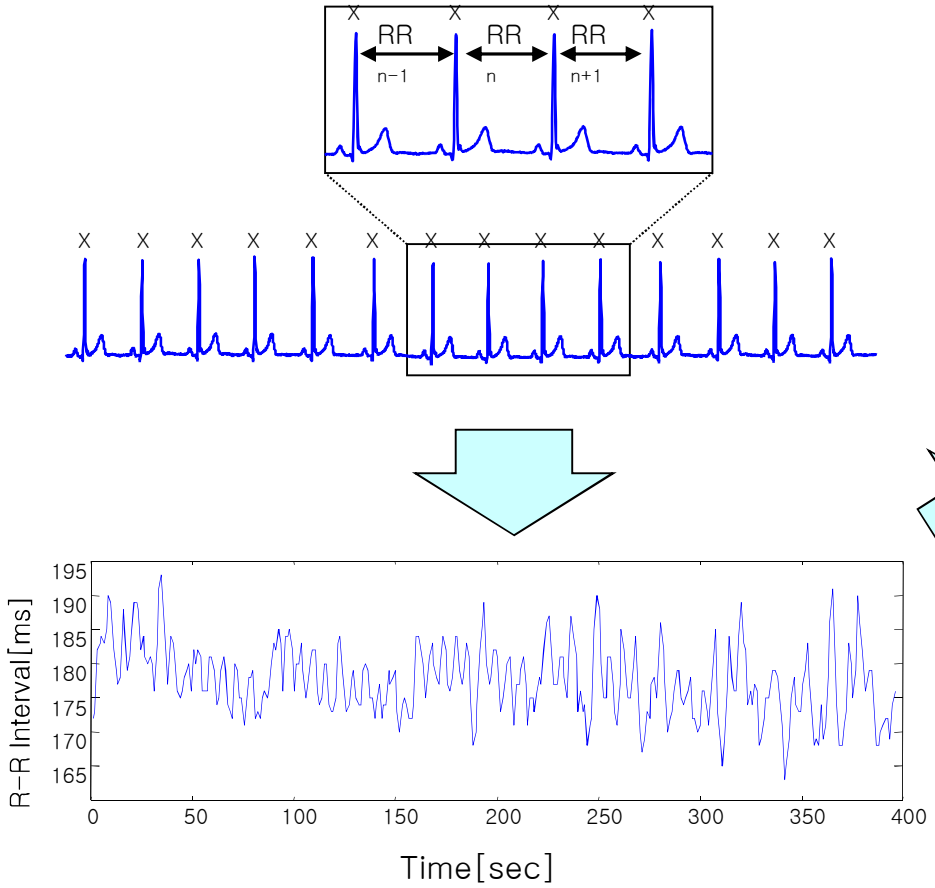
Under steady state condition, the heart rate is also not regular.

The generation of HRV

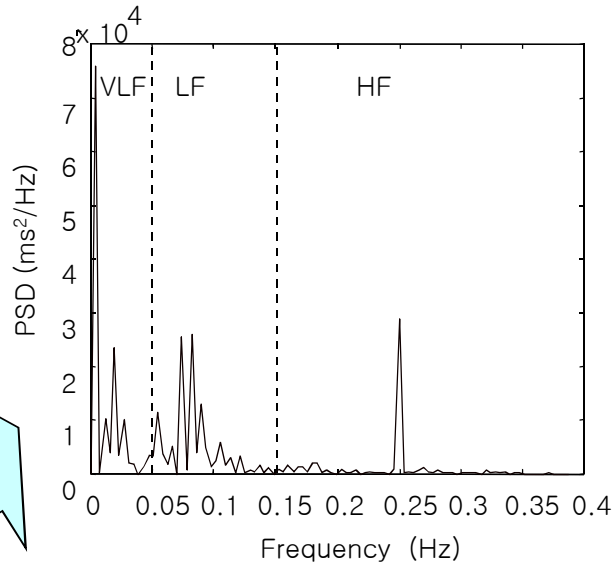


Proper ANS regulation lead to bigger fluctuation of HR

HRV Signal Induction

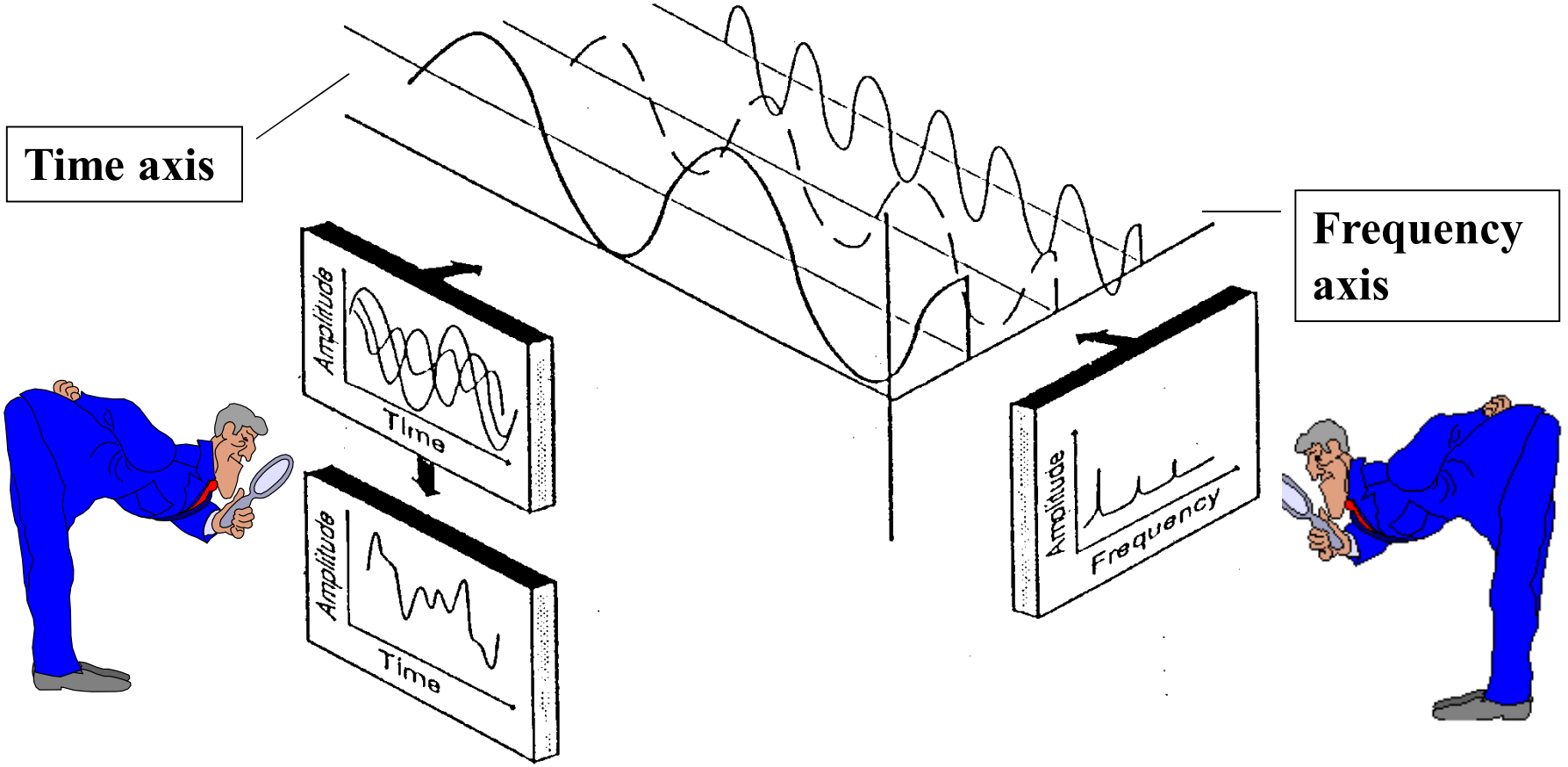


Time Domain



Frequency Domain

Signal - View



Time Domain

Frequency Domain

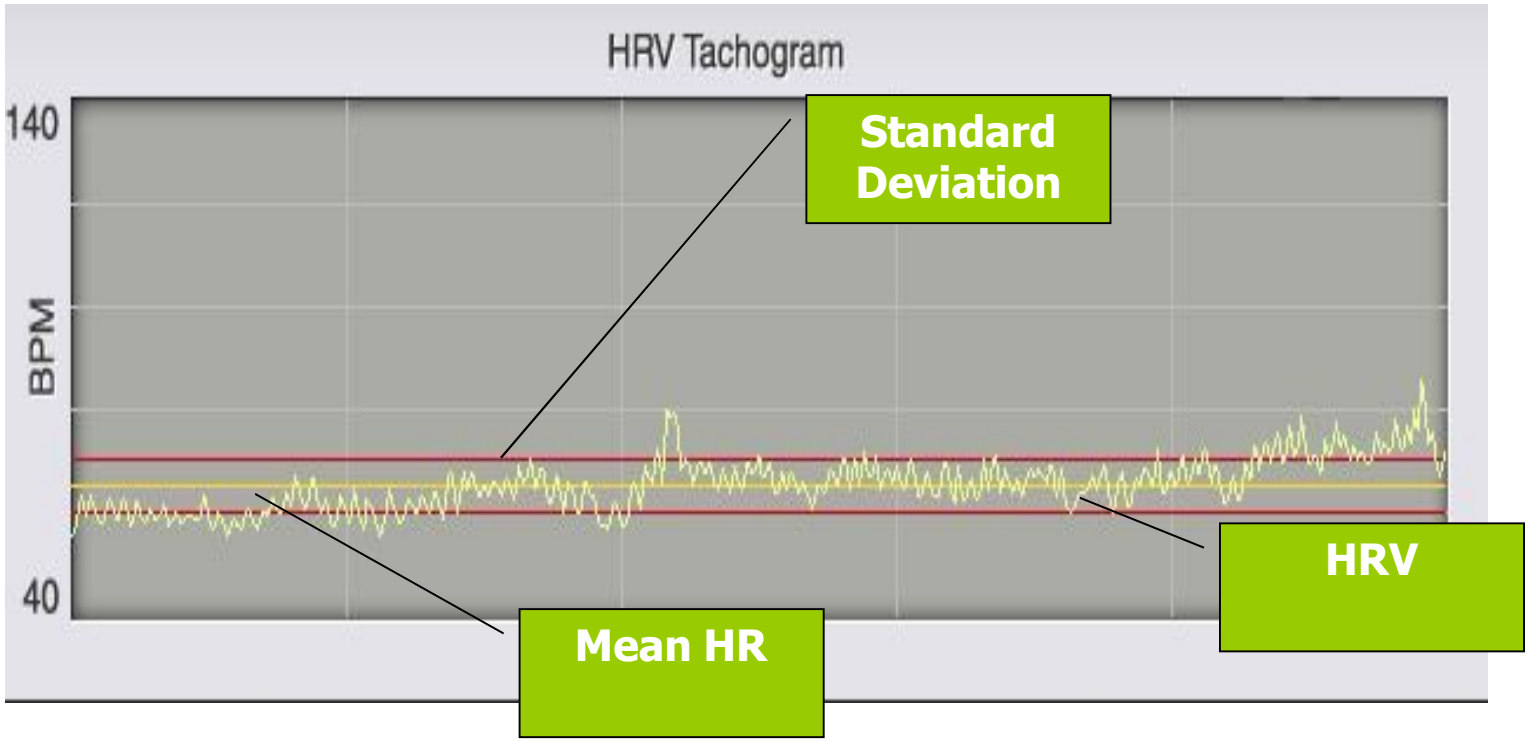
Parameter

Time Domain Analysis	Frequency Domain Analysis
Mean HR	TP
SDNN	VLF
RMSSD	LF
PSI	HF
ApEn	LF norm
SRD	HF norm
	LF/HF ratio

Parameter – Time Domain

1.SDNN (Standard Deviation Normal to Normal)

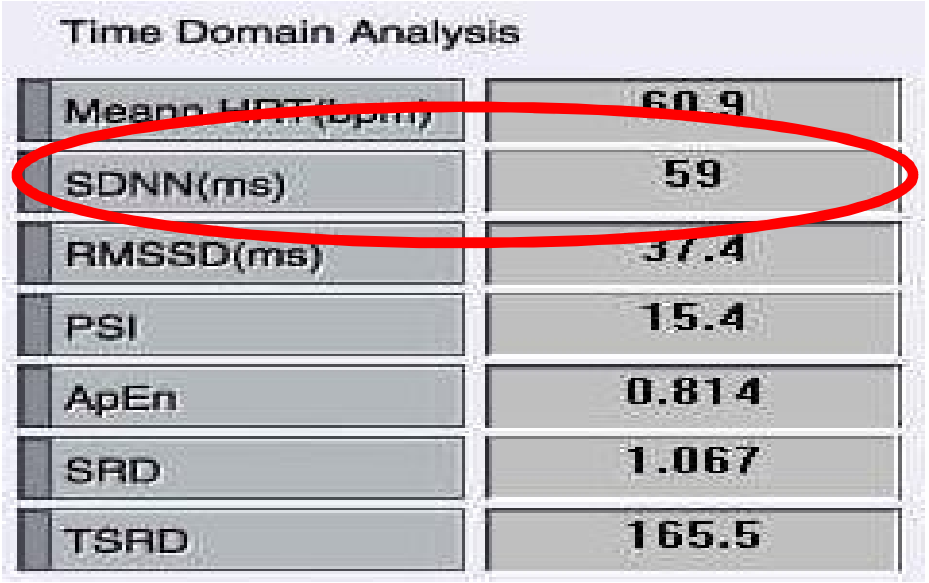
- Standard deviation of total N-N intervals
- Reflect the variation of HR



Parameter – Time Domain

1. SDNN (Standard Deviation Normal to Normal)

– Stress dissolution ability

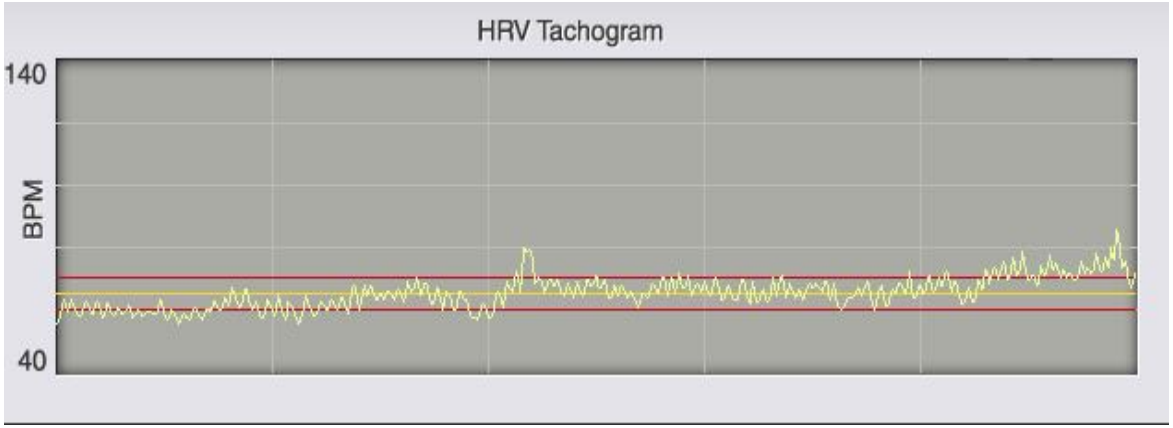


Above 50	Good
25–50	Normal
15–25	Note
Below 10	High risk of functional disorder or disease

Parameter – Time Domain

〈Graphic view of SDNN〉

1) HRV Tachogram : Irregular, complex as healthy



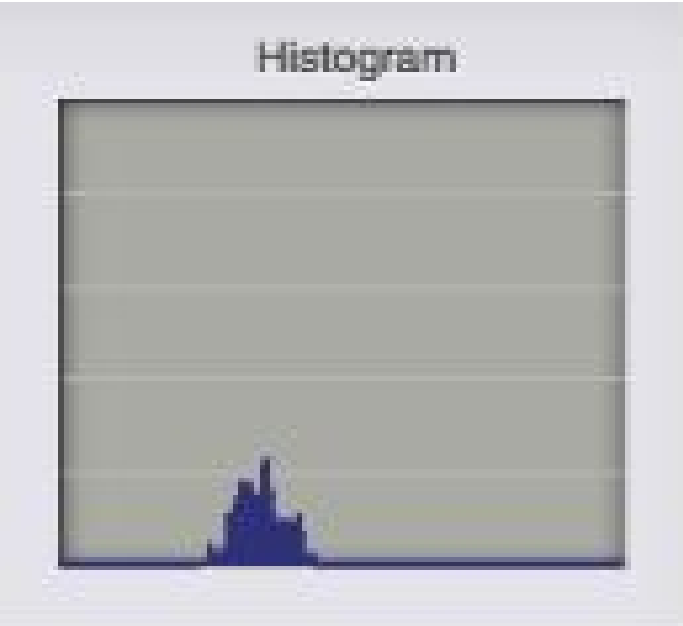
Healthy

Unhealthy

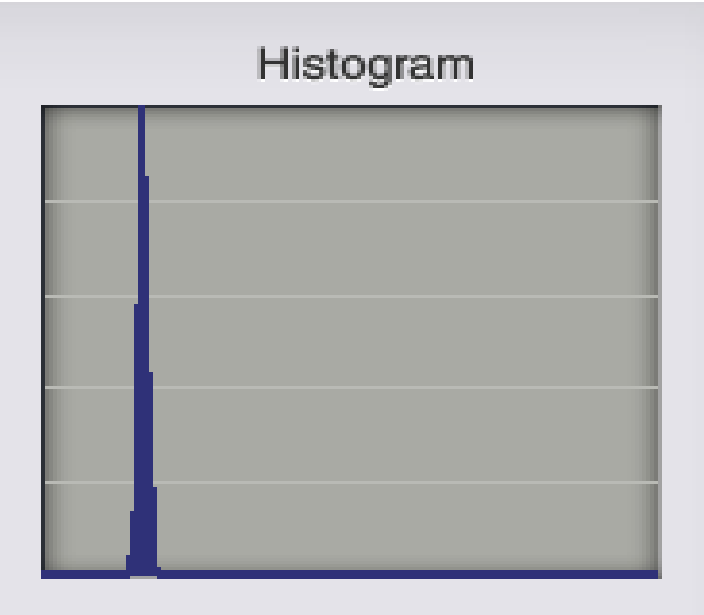
Time Domain

2) Histogram : X axis is RR interval , Y axis is Numbers

As the healthier, X axis is wide, and Y axis is low



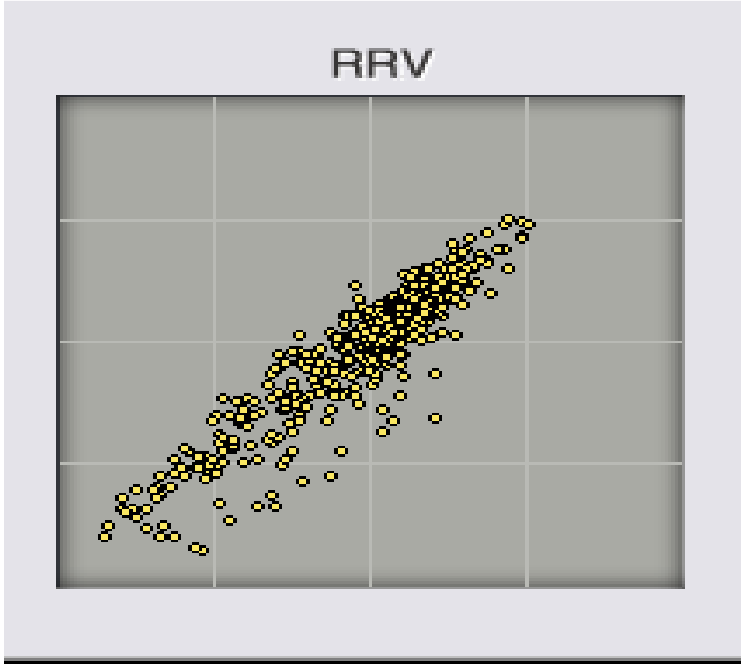
Healthy: wide,flat



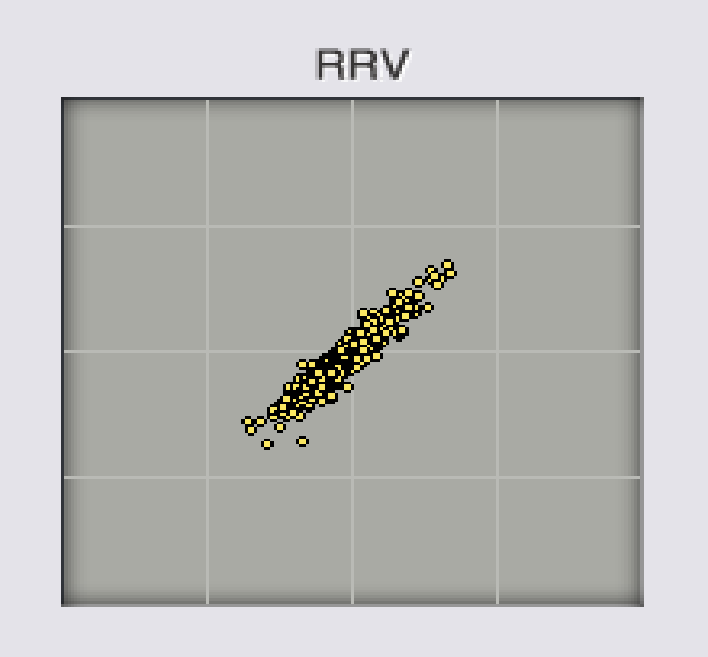
Unhealthy: narrow ,sharp

Time Domain (SDNN)

3) RRV : Both X and Y axis indicate heart beats
For the healthier person, RRV spreads widely



Healthy :wide, spread



Unhealthy : narrow, concentrate

2. RMSSD

(Square root of the mean of sum of the square of differences between adjacent NN intervals)

- **Assessment of parasympathetic nervous activity which is one of Autonomic Nervous Systems related to the heart.**
- **Before coming the heart dysfunction or disorder symptom , RMSSD shows lower than the healthy person**

-> SDNN decrease and RMSSD decrease (10↓)

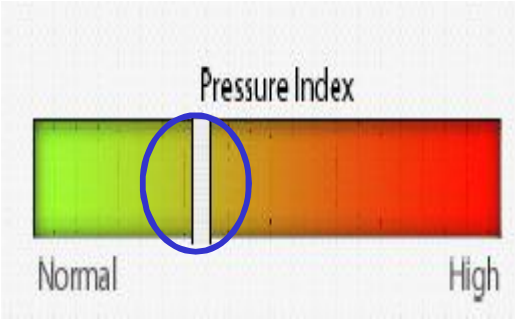
: Increases the risk of heart disease

Parameter – Time Domain

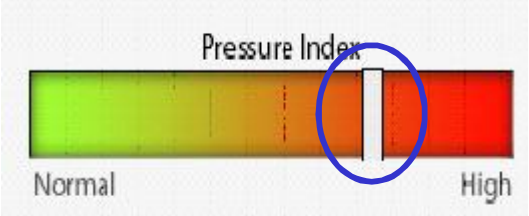
3. PSI (Physical Stress Index)

The pressure loaded on regulation system

- By the virtue of exercise or other physical activity, Heart Rate(HR) increases
  -> At the moment, HRV (Heart Rate Variability) lessens
  -> increases the pressure loaded regulation system
-The degree of pressure loaded on regulation system, drawn from the time domain parameters such as HR, the distribution of HRV & RR interval



Healthy: green normal zone



Unhealthy: higher stress lead to place the bar on red higher zone

Time Domain

4. ApEn (Approximate Entropy)

Statistic value of complexity for the beat to beat interval

- Healthier person has higher value

5. SRD (Successive Approximate Entropy)

compare the fixed section of fore part as baseline with the change degree, result of rear part during the test

- Index to judge if the regular status keeps going
- If the value is '1', it indicates the regular status maintains

Parameter – Frequency Domain

1. VLF,LF,HF

1). VLF (Very low frequency)

- 0.0033-0.04Hz
- provide the additional information of sympathetic and parasympathetic nervous system

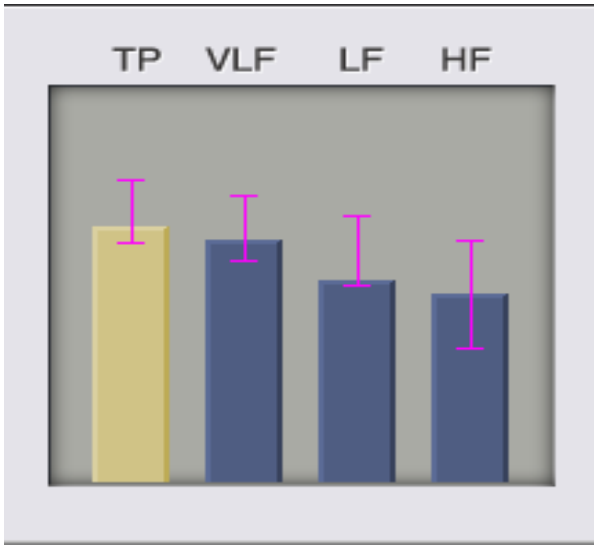
2). LF (low frequency)

- 0.04-0.15Hz. Also known as “Mayer” waves.
- Relative low frequency element in adjacent 0.1 Hz to control the blood pressure and reflect the activities of mechanism
- Seems to be related to both SNS and PNS activity

3). HF (High frequency)

- 0.15-0.4Hz
- Respiratory band : Relative high frequency element related to respiratory activity
- Indicative of parasympathetic nervous system (vagus nerve)

Parameter – Frequency Domain



Healthy

Unhealthy

Reduction of TP	Reduction of VLF	Reduction of LF	Reduction of HF
*Decreased ANS function *Lowered regulation competence *Decreased ability to cope with the requirement of continuously changing environment	*Lessen the ability of body temperature regulation *Hormone disorder	*Loss of energy *Fatigue *Insufficient Sleep *Lethargy	*Chronic stress *Aging *Reduced electrical stability of heart *Functional indigestion

2. LF norm , HF norm

- The ratio of value subtracts VLF from Total Power to LF or HF
  LF norm = LF / LF + HF -> Sympathetic nervous system
  HF norm = HF / Lf + HF -> Parasympathetic nervous system
- Reflects the regulation and balance degree of autonomic nervous system.

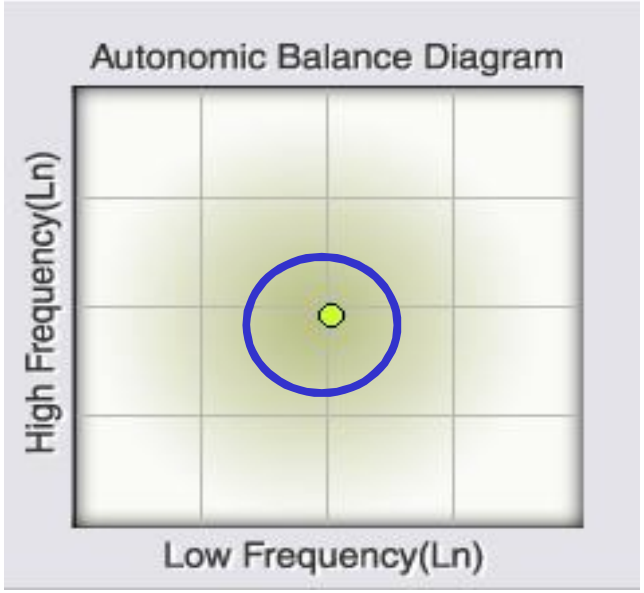
3. LF / HF ratio

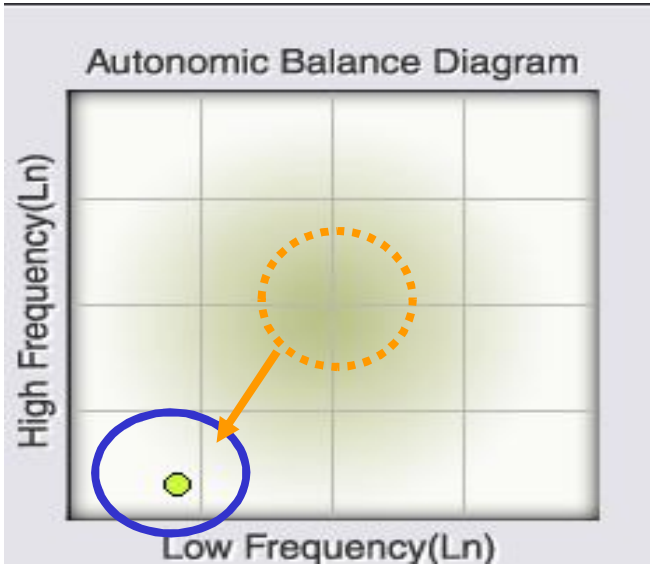
- Reflects the general balance degree between sympathetic and parasympathetic nerve by LF:HF ratio
- This value is direct proportion about the activity of sympathetic nerve. In the other hand, it is inverse proportion about the activity of parasympathetic nerve.

4. Autonomic Balance Diagram

: X axis is LF, Y axis is HF

If LF and HF value are in normal range, the spot marks around the center. Otherwise, in the ill state, fall down from the center.

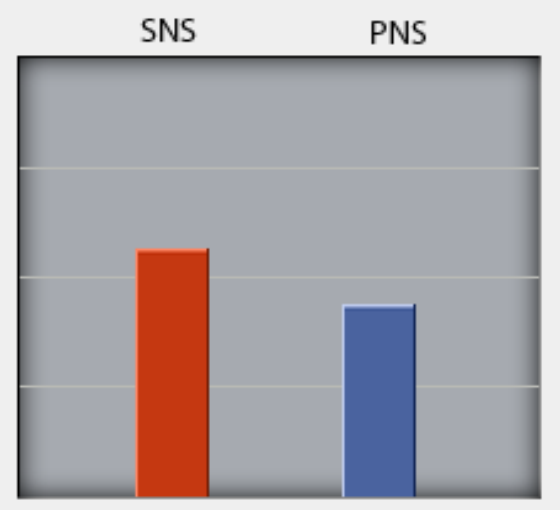




Parameter – Frequency Domain

〈LF/HF ratio〉

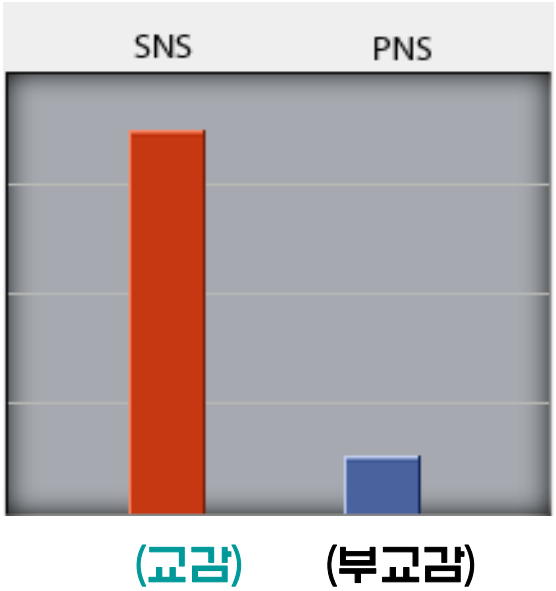
1) SNS & PNS: relative ratio between sympathetic and parasympathetic activity



Healthy: balanced state

SNS vs PNS = 6:4 ,5:5 ,4:6

(Upper tone of SNS)

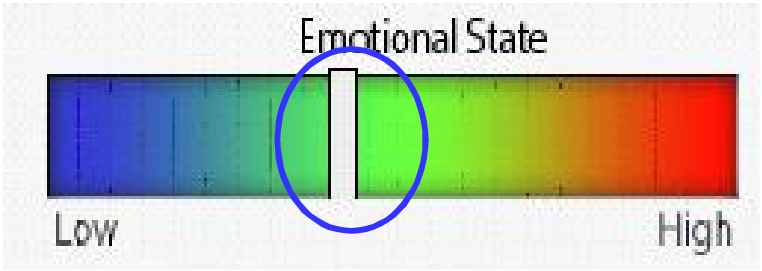


Unhealthy: ANS dysfunction

SNS dominant state

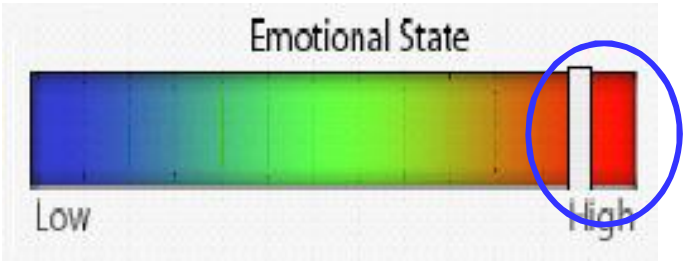
Parameter – Frequency Domain

2) Emotional State: reflects stability of the emotional state based on LF/HF ratio



Healthy

At the middle green zone, steady emotional state

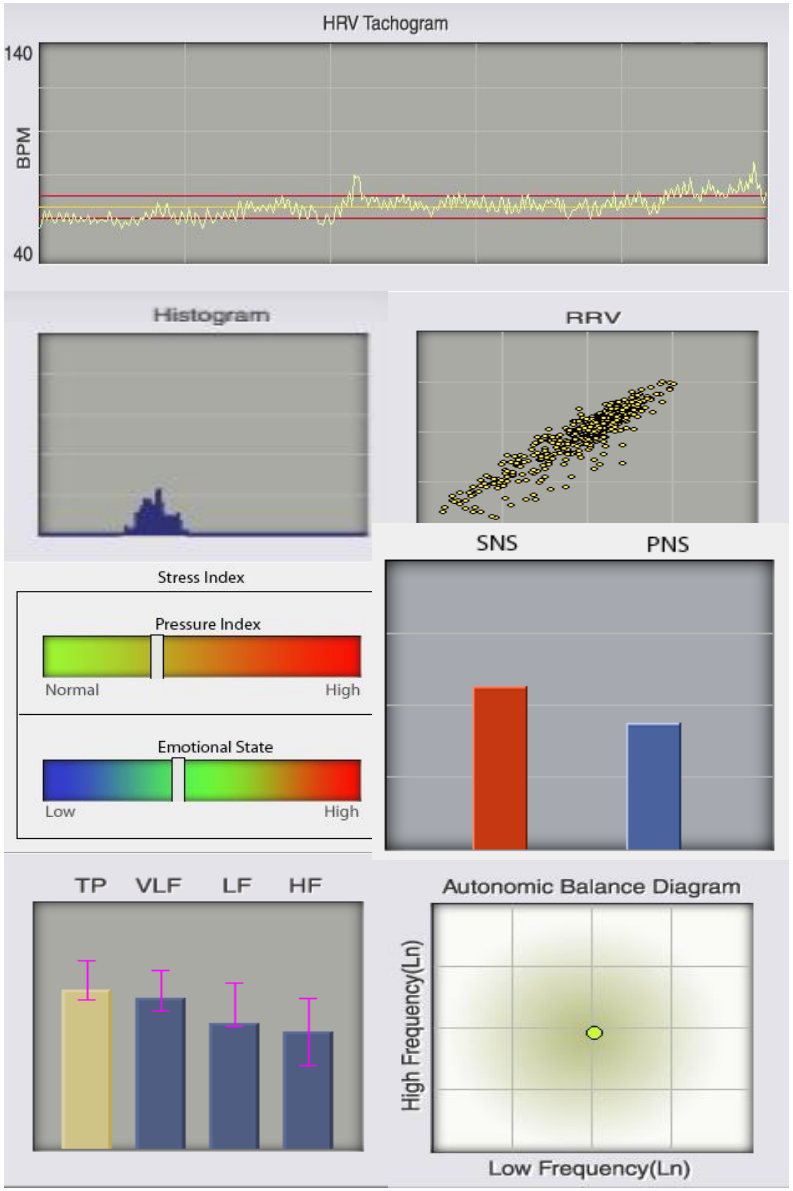


Under emotional Stress

- Low : depression mood
- High : Anxiety mood

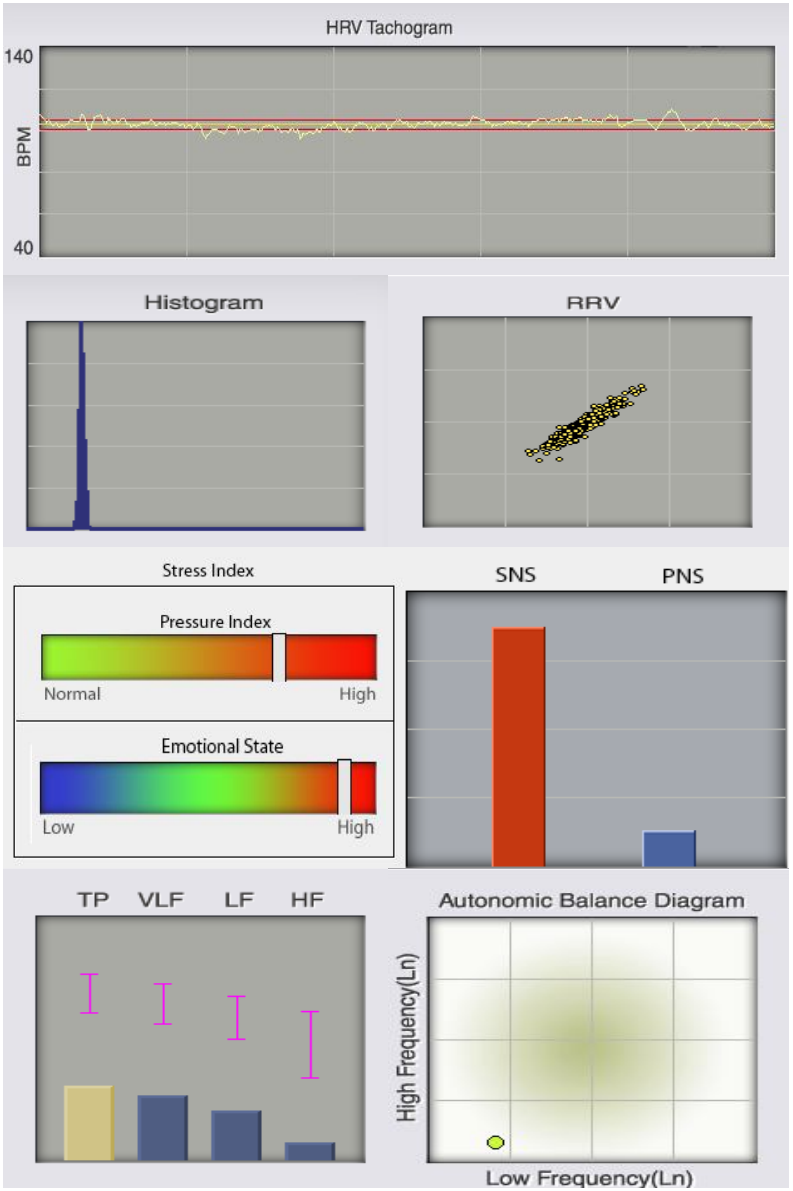
Healthy vs Unhealthy

Healthy



vs

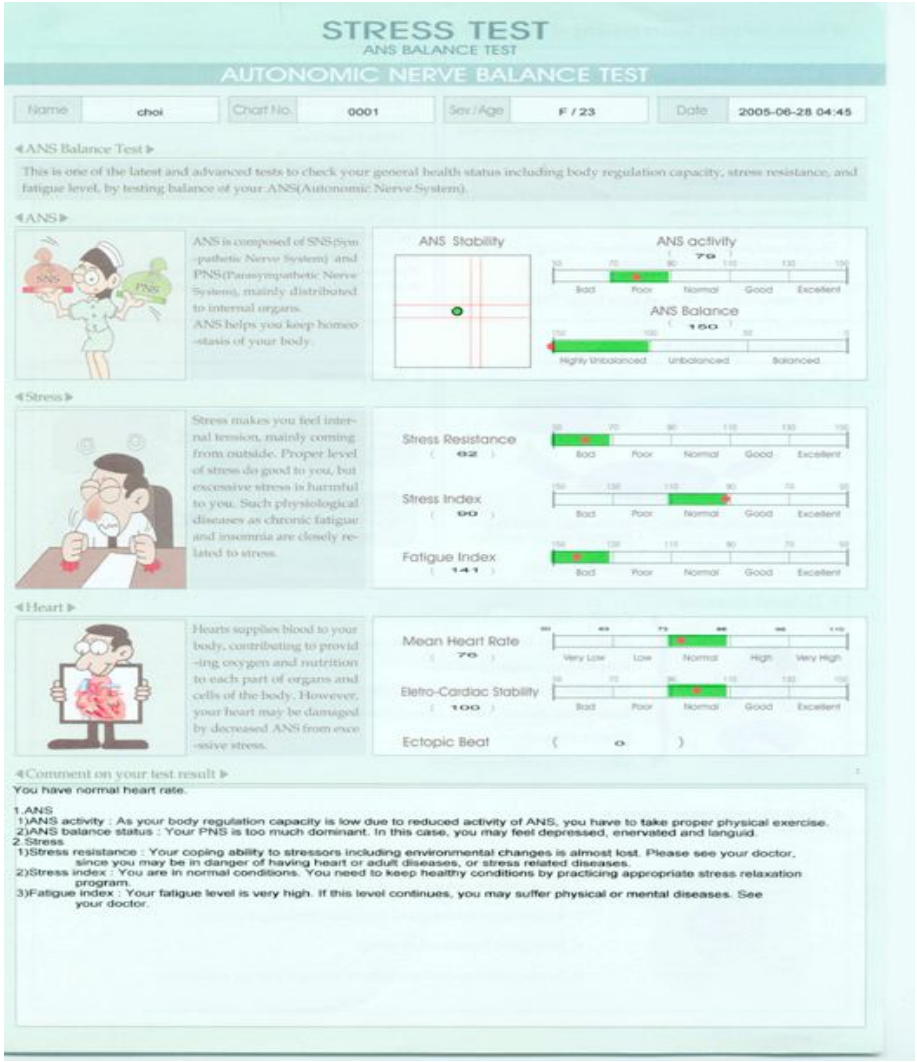
Unhealthy



HRV Report

ANS Balance Test Report (for professional)

DDR (Direct Diagnosis Result) Report (for the patient)



Part 2. A P G

Accelerated PlethysmoGraph

Plethysmograph (PTG)

- **Regional classification:** carotid pulsation, radius arterial pulsation, femoral arterial pulsation
- **Classification by detection method:** Oscilation, Plethysmograph
- **Artificial processing of Plethysmograph:** PTG, VPG, APG

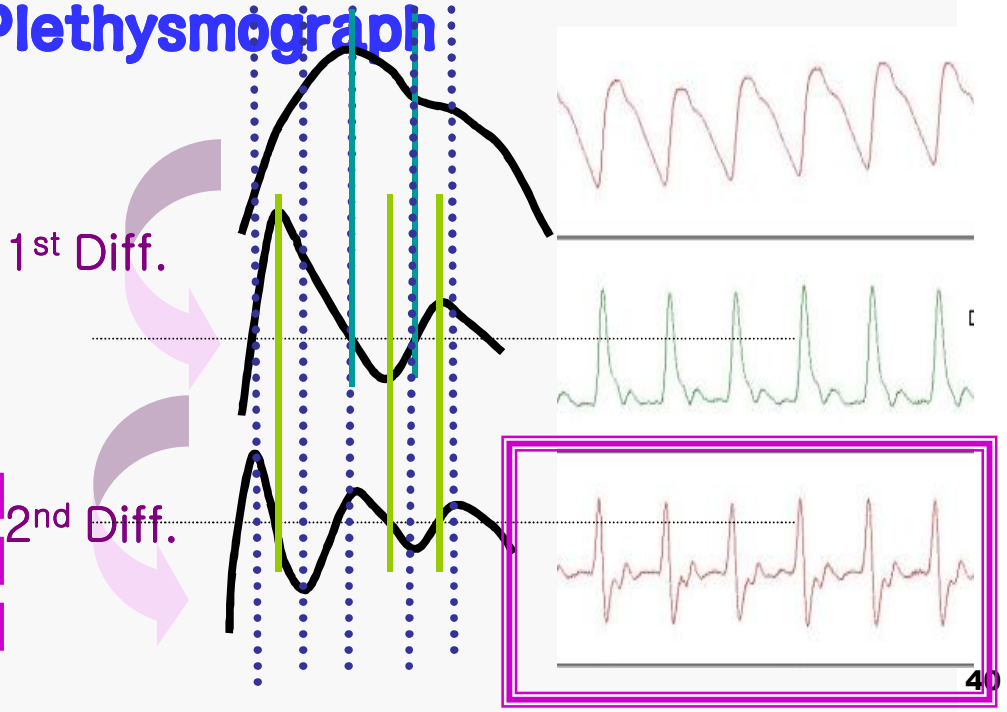
Artificial processing of the Plethysmograph

Plethysmogram(PTG)

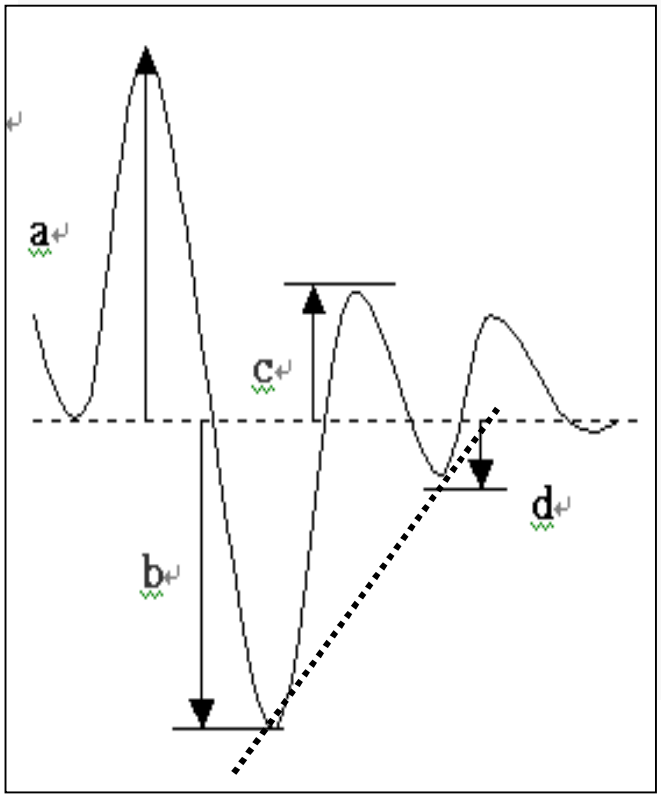
- Basic wave form

Velocity Plethysmogram(VPG)

Acceleration Plethysmogram(APG)



APG waveform



- **a** : Basic point to evaluate APG waveform
- **b** : **Cardiac constriction power (Cardiac output)**
  - The deeper (–) value is better shape
- **c** : **Arterial Elasticity**
  - Higher (+) value is better
- **d** : **Remaining blood volume**
  - Higher value, smaller (-) value is better
- **Differential Pulse Index(DPI):**

  b-c-d / a

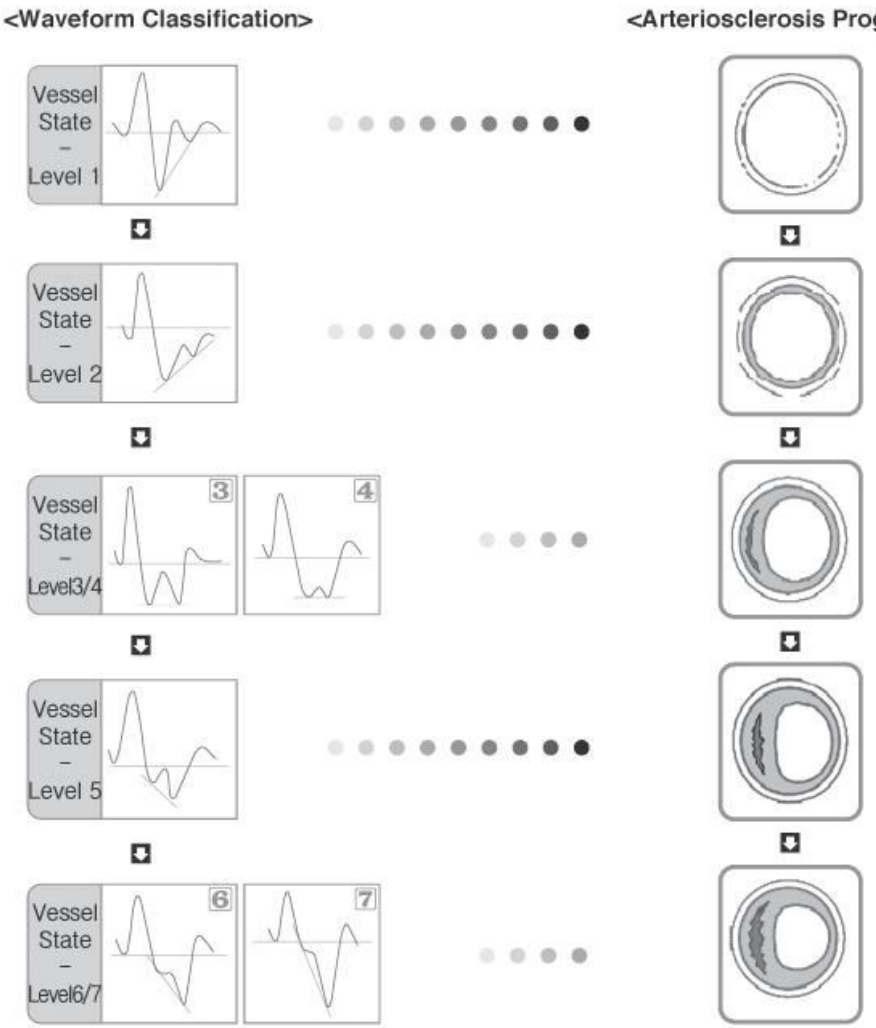
* The gradient of b, d point

: **vascular state and its aging degree**

Accelerated Plethysmograph (APG)

Classifying the wave type as aging

7 levels by the vascular state



Blood circulation and its vessel are good

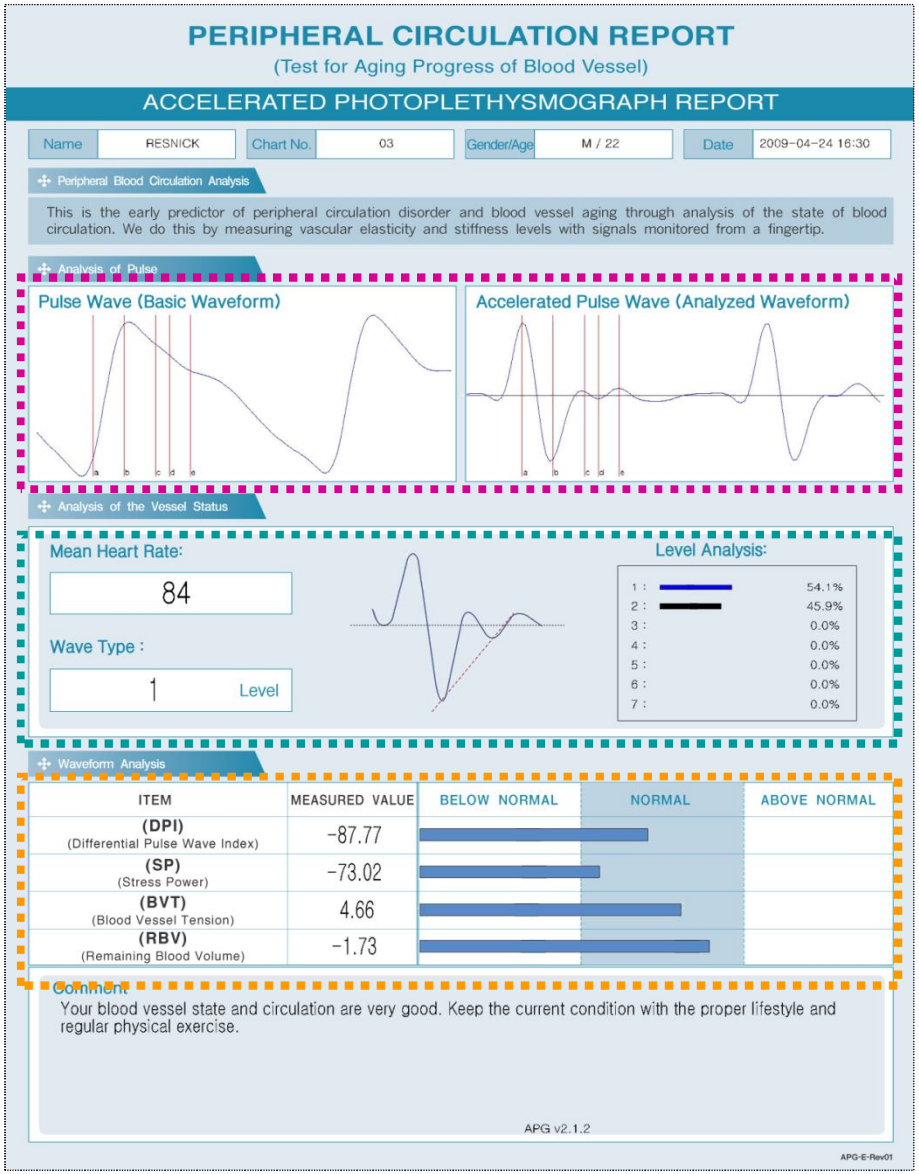
Current blood circulation and its vessel are good, but may go bad

Start to get aged in the vessel

Not good at the blood circulation and aged state in the vessel

Blood circulation disorder

APG REPORT



PERIPHERAL CIRCULATION REPORT

(Test for Aging Progress of Blood Vessel)

ACCELERATED PHOTOPLETHYSMOGRAPH REPORT

Name	RESNICK	Chart No.	03	Gender/Age	M / 22	Date	2009-04-24 16:30

Peripheral Blood Circulation Analysis

This is the early predictor of peripheral circulation disorder and blood vessel aging through analysis of the state of blood circulation. We do this by measuring vascular elasticity and stiffness levels with signals monitored from a fingertip.

Analysis of Pulse

Pulse Wave (Basic Waveform)

Accelerated Pulse Wave (Analyzed Waveform)

Analysis of the Vessel Status

Mean Heart Rate: 84

Wave Type : 1 Level

Level Analysis:

1 :	54.1%
2 :	45.9%
3 :	0.0%
4 :	0.0%
5 :	0.0%
6 :	0.0%
7 :	0.0%

Waveform Analysis

ITEM	MEASURED VALUE	BELOW NORMAL	NORMAL	ABOVE NORMAL
(DPI) (Differential Pulse Wave Index)	-87.77			
(SP) (Stress Power)	-73.02			
(BVT) (Blood Vessel Tension)	4.66			
(RBV) (Remaining Blood Volume)	-1.73			

Comment

Your blood vessel state and circulation are very good. Keep the current condition with the proper lifestyle and regular physical exercise.

APG v2.1.2

APG-E-Rev01

1. Wave analysis result
2. Vascular state analysis result
3. Result comparing to similar aged people
4. COMMENT

Parameters

1) DPI (Differential Pulse wave Index)
: Aging degree of the blood vessel
b-c-d / a
bigger (-) value means younger state in the vessel

2) EC (Eccentric Constriction Power) – b/a
: Cardiac constriction power. Bigger (-) value means better state in the peripheral circulation

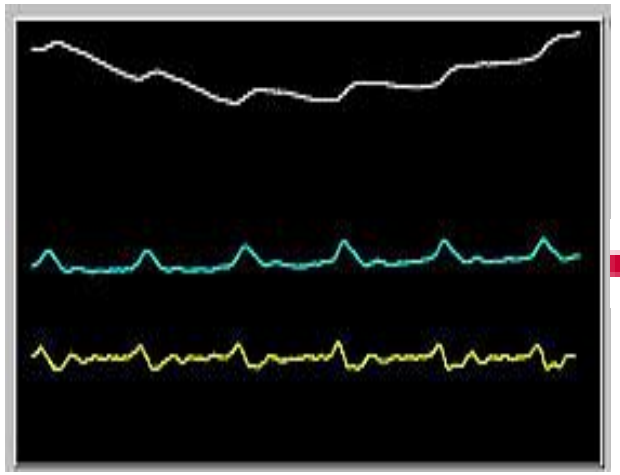
3) AE (Arterial Elasticity) – c/a
: The degree of arterial constriction and relaxation function. It reflect tension of the wall in the blood vessel. The bigger (+) value is better.

4) RBV (Remaining Blood Volume – d/a
: It reflect remained blood volume after arterial constriction. The higher value, smaller (-) value is better

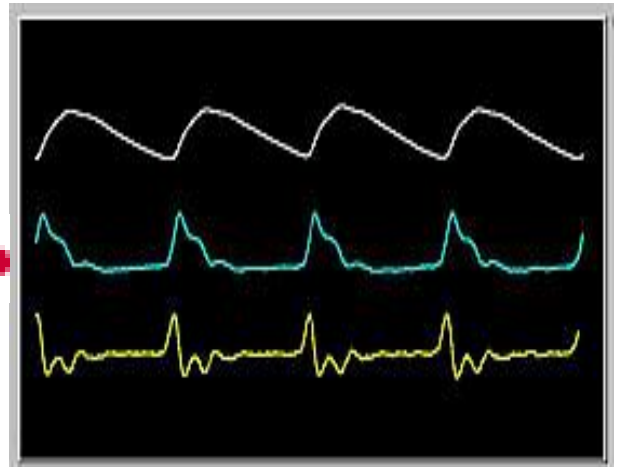
Clinical significance

- Peripheral blood circulation disorder
- Early detection of arteriosclerosis and its processing
- The cardiovascular system dysfunction including myocardiac infarction
- Judgment about Medicine treatment

Clinical cases (pre, post-treatment)

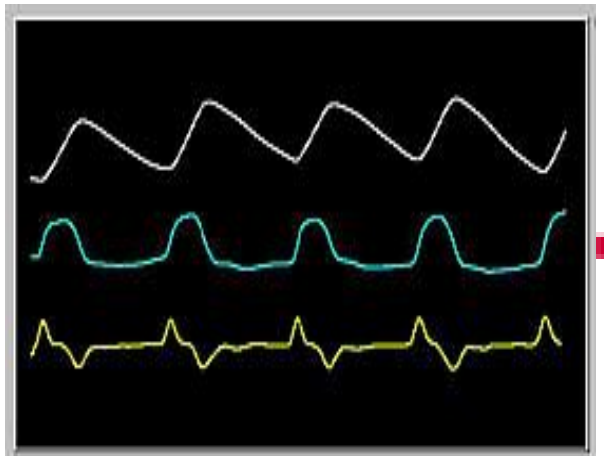


level 5

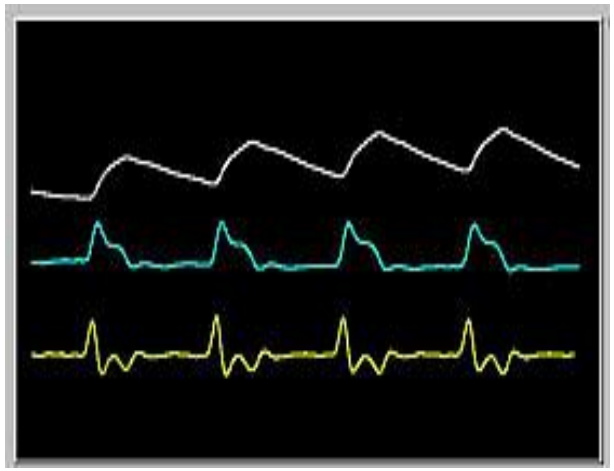


level 3

Pneumonia



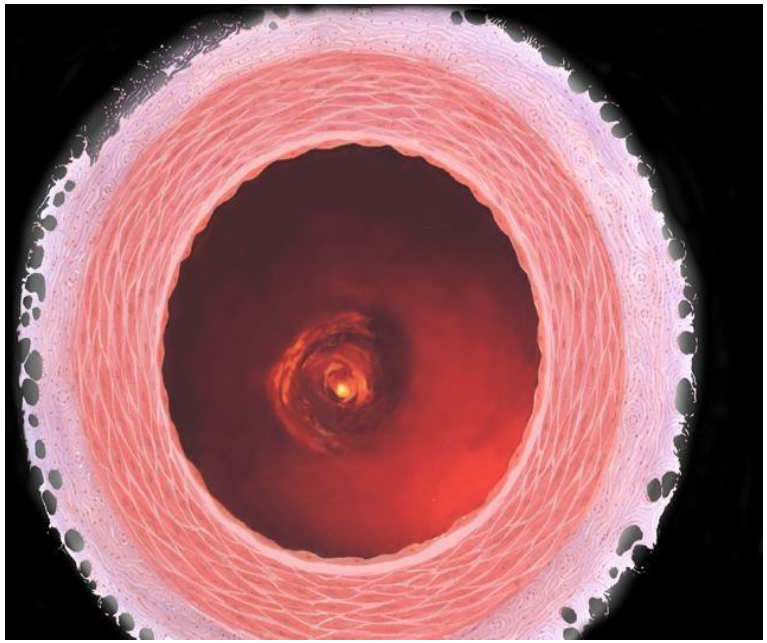
level 6



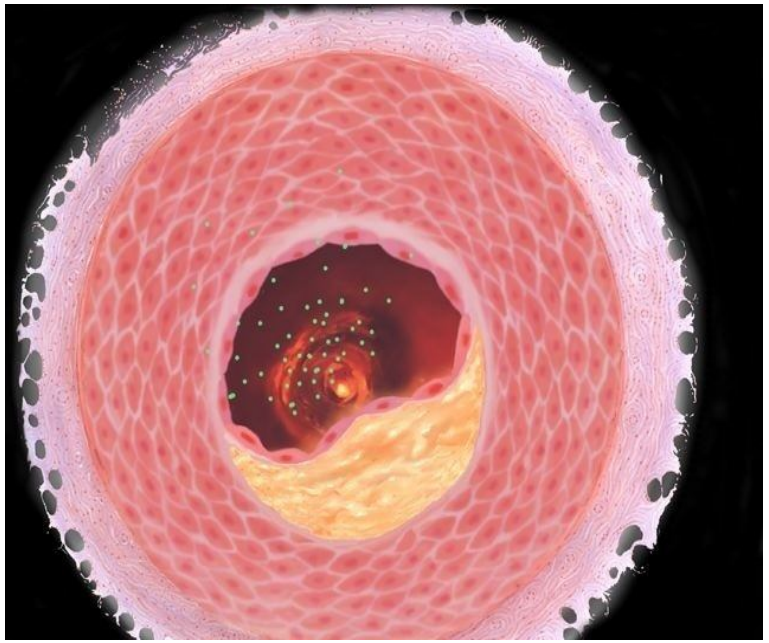
level 3

Diabetes

Correlation to the Artery



Normal artery



Abnormal artery with plagues

Cautions for measurement

- Do not move or talk during the measurement.
- Do not exercise and relax about 10 minutes in measuring room before taking measurement.
- Do not strain and then take regular breath. Refrain slow breath during taking measurement.
- Keep the height of the sensor same to the heart.
- The measurement should be taken with eye open.
- Consult with doctor in case of arrhythmia or cardiac disease.
- Measuring in the morning recommended
- Refrain from smoking, taking drug or coffee 3 hours prior to the measurement.
- Refrain drinking the day before taking measurement.
- Refrain from wearing accessories (ring, watch, manicure on a nail) that may interfere accurate measurement.
- Avoid measurement after meal.
- Keep quiet and comfortable conditions in the room.

(room temp.22℃ ~26℃)

Thank you