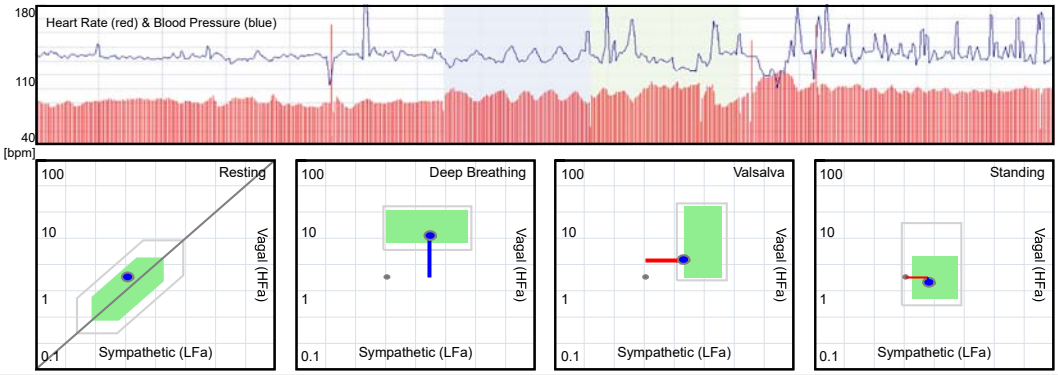
VitalScan

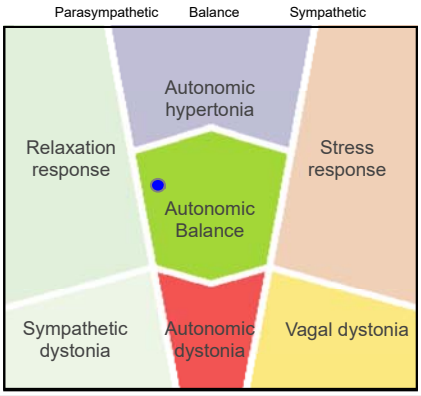
SUMMARY REPORT

Demo Patient
Gender: Male
Age: 51 (DOB: Jan 1 1966)
Weight: 183 lbs
BMI: 27
Height: 5 ft 9 in

Physician Only Report
Exam Date: Sep 11 2017 14:57

Autonomic Nervous System Function





	HR	BP	LFa	HFa	SpO2	Comment
Resting	82	128/71	1.38	2.07	97	Borderline normal level of sympathetic and parasympathetic tone;
Deep Breathing	89	117/77	4.71	7.97	97	Normal Parasympathetic response to stimulation;
Valsalva	91	132/99	4.15	3.62	97	Normal Sympathetic response to stimulation;
Standing	95	125/86	2.65	1.75	93	Normal ANS response to stimulation; Enhanced cardiovascular adaptation. The autonomic regulation of the functioning of the cardiovascular system provides enormous ability for a long-term adaptation to physical exertions and to adequately tolerate them. Typically this is a sign of the absence of physical exhaustion, overtraining or any cardiovascular health conditions. This is a typical pattern of a physically active healthy individual without any evident signs of physical exhaustion, overtraining or other conditions altering the regulatory functions of the autonomic nervous system or a cardiovascular response to it;

	Score	Units	Norms		Score	Units	Norms		Score	Units	Norms
Autonomic Activity	68	ms2	40-80	Autonomic Balance	2.3	ratio	-3 - 3	E/I Ratio	1.15	ratio	>1.1
Valsalva Ratio	1.25	ratio	>1.15	30:15 Ratio	1.26	ratio	>1.1	Functional Age	56	years	< 53

	Score	Norms	Description	Comments
MSI	-0.88	< 1.0	MSI is an indicator of accumulative mental stress. Mental stress can be caused by situations one has to cope with daily and the emotional states that result. The way in which a person copes with stressful events is a significant contributing factor to this process. When the stress becomes too great, the body will show	The score is below average. It indicates low mental stress. Stress in the recent past has had little effect on your mental-health. The negative effects of mental stress are limited.
PSI	1.01	< 1.0	PSI is an indicator of accumulative chronic physical stress. Physical stress can be caused by long-term exposure to negative factors in one`s life or physical illness. The way in which a person copes with physical stressors is a significant contributing factor to this process. When the stress becomes too great, the body	The score is clearly above average. It indicates high physical stress. Stress in the recent past has had a major impact on your physical balance. The negative effects of physical stress are clearly visible. It is possible that you experience physical inconveniences as myalgia, back complaints, palpitations and reduced resistance to illness.

Cardiovascular Function

	Score	Norms	Description	Comments
EEI	0.7	0.3 - 0.7	EEI is an indicator for left ventricle ejection power and elasticity of large arteries.	Borderline Normal Blood Circulation
DDI	0.64	0.3 - 0.7	DDI indicates the contractility, tension and stiffness in the small arteries.	Borderline Normal Blood Circulation
DEI	0.52	0.3 - 0.7	DEI represents the reflection of arterial elasticity and blood flow in the venous system.	Normal Blood Circulation
AI	-0.28	<-0.7	Augmentation Index (AI) is a useful marker for cardiac risk. AI increases with age and a sedentary lifestyle.	AI is a measure of arterial stiffness and it provides general information about the arteries. AI is positively correlated with pulsewave velocity, blood pressure and hypertension.
ABI	1.04	1 - 1.4	Ankle/Brachial Index	Normal range
TBI	1.15	> 0.75	Toe/Brachial Index	Normal range

	Score	Units	Norms		Score	Units	Norms		Score	Units	Norms
Reflection Index	0.5		.65-.85	Stiffness Index	8.55	m/s	< 8.0	Stroke Volume	64.6	ml	55-100
Cardiac Output	5.29	l/min	4.0-8.0	Mean Arterial Pressure	88	mmHg	70-110	Blood Volume	5.25	l	3-5
C1	12.8	ml/mmHg	> 10.0	C2	4.73	ml/mmHg	> 6.0	DPTI/SPTI	0.26	ratio	
Ventricular Extrasystole	0		< 1	Atrial Extrasystole	0		< 1	Artifacts	1		< 1
QRS	53	ms	60-120	QTc	354	ms	350-460	Body Mass Index	27		19-25

Sudomotor Function

	Score	Norms	Description	Comments
Sudomotor Neuropathy	11	< 50	Risk for sudomotor autonomic neuropathy. Sweat Gland C-Fiber density and function	No clear sign of Sudomotor dysfunction.

Physician`s Notes:

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CARDIAC AUTONOMIC NEUROPATHY ASSESSMENT

Demo Patient
Gender: Male
Age: 51 (DOB: Jan 1 1966)
Weight: 183 lbs
BMI: 27
Height: 5 ft 9 in

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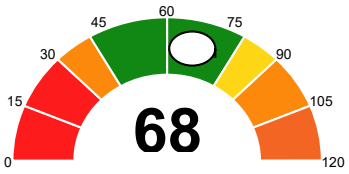
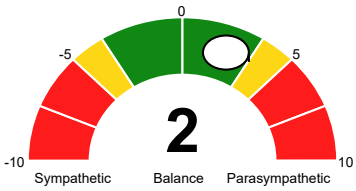
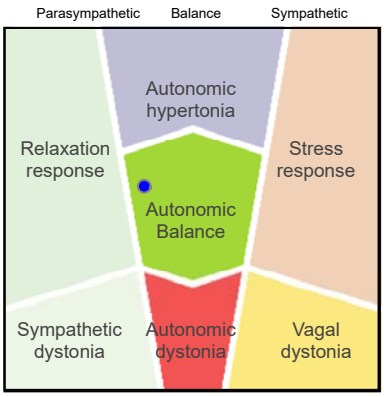
AUTONOMIC ACTIVITY



AUTONOMIC BALANCE



The sympathetic nervous system activates the “fight-or-flight” responses. It activates the glands and organs that defend the body against attack. The sympathetic nervous system uses up energy and depletes the body.The parasympathetic nervous system controls the “rest and digest” responses. The parasympathetic nervous system, when activated by rest, relaxation and happy thoughts, is essential for balanced living and for all healing.

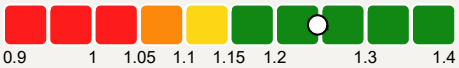


E/I RATIO: 1.15

Expiration/Inspiration Ratio is a marker of cardiovagal response.

VALSALVA RATIO: 1.25

Marker of baroreceptor sensitivity response.

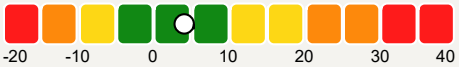


30/15 RATIO: 1.26

Heart rate change during standing or tilt at 30 and 15 second.

Systolic Pressure Response to Standing: 4 mmHg

Marker of sympathetic adrenergic function.



Autonomic Nervous System

Borderline normal level of sympathetic and parasympathetic tone;

Parasympathetic Response to Deep Breathing

Normal Parasympathetic response to stimulation;

Sympathetic Response to Valsalva Maneuver

Normal Sympathetic response to stimulation;

Active Standing / Head-up Tilt

Normal ANS response to stimulation; Enhanced cardiovascular adaptation. The autonomic regulation of the functioning of the cardiovascular system provides enormous ability for a long-term adaptation to physical exertions and to adequately tolerate them. Typically this is a sign of the absence of physical exhaustion, overtraining or any cardiovascular health conditions. This is a typical pattern of a physically active healthy individual without any evident signs of physical exhaustion, overtraining or other conditions altering the regulatory functions of the autonomic nervous system or a cardiovascular response to it;

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AUTONOMIC REGULATION ASSESSMENT

Demo Patient
Gender: Male
Age: 51 (DOB: Jan 1 1966)
Weight: 183 lbs
BMI: 27
Height: 5 ft 9 in

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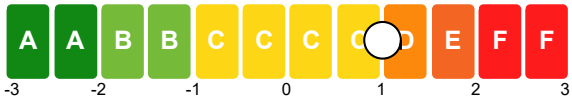
AUTONOMIC PHYSICAL DYSREGULATION (PSI) = 1.01

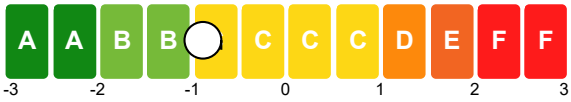
PSI is an indicator of accumulative chronic physical stress. Physical stress can be caused by long-term exposure to negative factors in one`s life or physical illness. The way in which a person copes with physical stressors is a significant contributing factor to this process. When the stress becomes too great, the body will show signs of distress.



The score is clearly above average. It indicates high physical stress. Stress in the recent past has had a major impact on your physical balance. The negative effects of physical stress are clearly visible. It is possible that you experience physical inconveniences as myalgia, back complaints, palpitations and reduced resistance to illness.

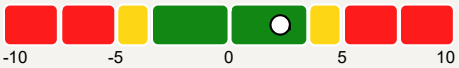
ACCUMULATIVE MENTAL STRESS (MSI) = -0.88

MSI is an indicator of accumulative mental stress. Mental stress can be caused by situations one has to cope with daily and the emotional states that result. The way in which a person copes with stressful events is a significant contributing factor to this process. When the stress becomes too great, the body will show signs of distress.



The score is below average. It indicates low mental stress. Stress in the recent past has had little effect on your mental-health. The negative effects of mental stress are limited.

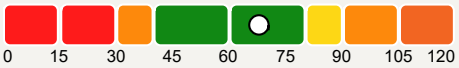
Autonomic Balance: 2.3



Borderline normal level of sympathetic and parasympathetic tone;

The sympathetic nervous system activates the “fight-or-flight” responses. The parasympathetic nervous system controls the “rest and digest” responses.

Total Autonomic Activity: 68



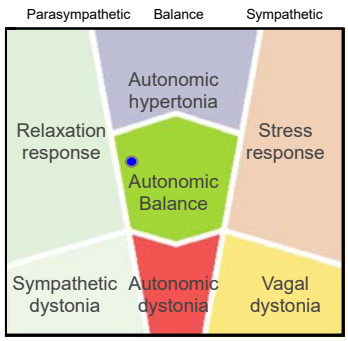
Maker of the overall ANS activity at rest.

Body Mass Index (BMI): 27

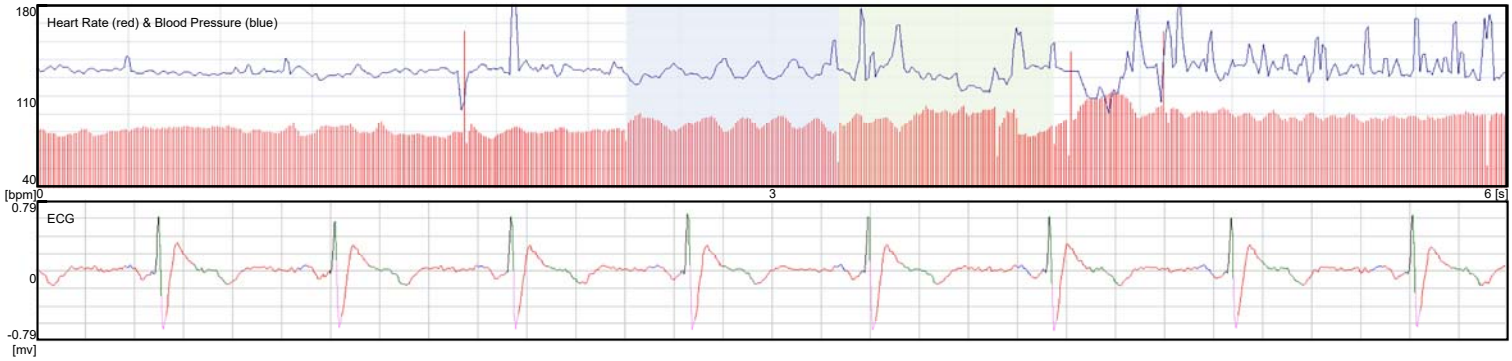
Overweight - prone to health risks

Body mass index is defined as the individual's body weight divided by the square of his or her height. The body mass index can be used to identify if you are overweight.

	Score	Units	Norms		Score	Units	Norms
LFa	1.38	ms2	0.5-4	HFa	2.07	ms2	0.5-4
Blood Pressure	128/71	mmHg	<120	SpO2	97	%	>94
BPSys Response to Standing	4	mmHg	<10	Functional Age	56	years	< 53
Health Risk Factor	45	%	< 50	SDNN	28	ms	> 40
HeartRate	82	bpm	< 90	Ventricular Extrasystole	0		< 1
Atrial Extrasystole	0		< 1	Artifacts	1		< 1



A - Normal **B** - Borderline Normal **C** - Moderate **D** - Borderline Abnormal **E** - Abnormal **F** - Severe



Physician`s Notes:

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PERIPHERAL ARTERY DISEASE ASSESSMENT

Demo Patient
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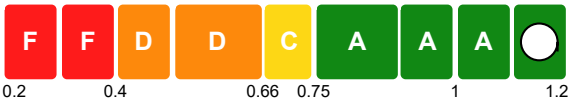
ANKLE/BRACHIAL INDEX (ABI) = 1.04

ABI test is a quick, noninvasive way to check your risk of peripheral artery disease (PAD). Peripheral artery disease is a condition in which the arteries in your legs or arms are narrowed or blocked.

Normal range

TOE/BRACHIAL INDEX (TBI) = 1.15

Determine the severity of peripheral arterial disease present in a lower extremity.



Normal range

Ejection Elasticity Index (EEI): 0.6

EEI is an indicator for left ventricle ejection power and elasticity of large arteries.

Borderline Normal Blood Circulation

Dicrotic Dilation Index (DDI): 0.63

DDI indicates the contractility, tension and stiffness in the small arteries.

Borderline Normal Blood Circulation

Dicrotic Elasticity Index (DEI): 0.5

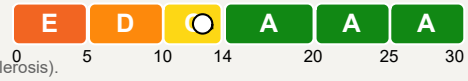
DEI represents the reflection of arterial elasticity and blood flow in the venous system.

Normal Blood Circulation

Coronary Respiratory Response: 12.6

CAD occurs when the blood vessels that transport blood to the heart are narrowed and hardened due to plaque buildup (atherosclerosis).

Acceptable, Borderline



	Score	Units	Norms		Score	Units	Norms
Augmentation Index	-0.27		<-0.7	Reflection Index	0.5		.65-.85
Stiffness Index	8.55	m/s	< 8.0	Stroke Volume	64.6	ml	55-100
Cardiac Output	5.29	l/min	4.0-8.0	Mean Arterial Pressure	88	mmHg	70-110
Blood Volume	5.25	l	3-5	C1	12.72	ml/mmHg	> 10.0
C2	4.73	ml/mmHg	> 6.0	DPTI/SPTI	0.28	ratio	
Systemic Vascular Resistance	1307		700-1800	Pulse Oximetry	96.44		>95
Blood Pressure	128/71	mmHg	<120				

A - Normal B - Borderline Normal C - Moderate D - Borderline Abnormal E - Abnormal F - Severe

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Autonomic Nervous System Function

The Autonomic Nervous System (ANS) is the involuntary division of the nervous system. It consists of autonomic neurons that conduct impulses from the central nervous system (brain and/or spinal cord) to glands, smooth muscle and cardiac muscle. ANS neurons are responsible for regulating the secretions of certain glands (i.e., salivary glands) and the regulation of heart rate and peristalsis (contraction of smooth muscle in the digestive tract), among other functions. ANS regulates physiologic processes, such as blood pressure, heart rate, body temperature, digestion, metabolism, fluid and electrolyte balance, sweating, urination, defecation, sexual response, and other processes. Regulation occurs without conscious control, i.e., autonomously. Disorders of the ANS can affect any system of the body. They can originate in the peripheral or central nervous system and may be primary or secondary to other disorders. Symptoms suggesting autonomic dysfunction include orthostatic hypotension, heat intolerance, and nausea.

The ANS has two major divisions: the sympathetic and parasympathetic systems. Many organs are controlled primarily by either the sympathetic or parasympathetic system, although they may receive input from both; occasionally, functions are reciprocal.

Heart rate variability (HRV) is a measure of variations in the heart rate. It is calculated by analyzing the time series of beat-to-beat intervals from ECG. HRV is a noninvasive electrocardiographic marker reflecting the activity of the sympathetic and vagal components of the ANS on the sinus node of the heart. It expresses the total amount of variations of both instantaneous HR and RR intervals.
HRV frequency domain Fourier transform analysis, to the beat-to-beat RR interval time series. Low Frequency band (LF) derives from sympathetic activity and has been hypothesized to reflect the delay in the baroreceptor loop. High Frequency band (HF) is driven by respiration and appears to derive mainly from vagal activity or the parasympathetic nervous system.

Sympathetic Activity (LFa): 1.38

The sympathetic nervous system activates the “fight-or-flight” responses. It activates the glands and organs that defend the body against attack. Thus, sympathetic output increases heart rate and contractility, bronchodilation, hepatic glycogenolysis and glucose release, BMR (basal metabolism rate), and muscular strength. The sympathetic nervous system uses up energy and depletes the body.

Parasympathetic Vagal Activity (HFa): 2.07

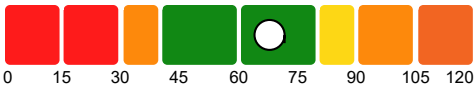
The parasympathetic nervous system controls the “rest and digest” responses. Gastrointestinal secretions and motility (including evacuation) are stimulated, heart rate is slowed, and blood pressure decreases. The parasympathetic nervous system, when activated by rest, relaxation and happy thoughts, is essential for balanced living and for all healing.

Autonomic LFa/HFa Ratio: 0.67

A balance between the two branches of ANS is essential for good health. Most illnesses and injuries cause or result from an imbalance between these two branches.

Borderline normal level of sympathetic and parasympathetic tone;

Total Autonomic Activity: 68



Parasympathetic Response to Deep Breathing

Respiratory sinus arrhythmia with inspiratory acceleration and expiratory slowing of HR depends on the breathing rate and is maximal at a rate of five to six breaths/minute. Changes of HR with deep respiration is a parameter of parasympathetic cardiac control. HRV is assessed with the patient breathing metronomically at a rate of six cycles/minute for one minutes.

Normal Parasympathetic response to stimulation;

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Excesses can be corrected by cholinergic antagonists
Depletion can also be slowed during early decline or symptoms reversed using anti-oxidants for e.g. by alpha-lipoic acid (1, 2) or by prompt control of the chronic disease which causes the depletion for e.g. careful glucose or insulin control in Diabetics (3,4) or improved urea control in kidney patients;

E/I Ratio: 1.15

The minimum and maximum HR of the averaged five largest consecutive responses are determined, and the difference between maximum and minimum HR and the expiratory/inspiratory ratio are calculated. Decreased HR variability is an important indicator of cardiac vagal denervation but it should be noted that normative values decrease with age and with increasing resting HR.

Significant Baroreflex Dysfunction. The baroreflex or baroreceptor reflex is one of the body's homeostasis mechanisms for maintaining blood pressure. Dysfunction may be a sign of accelerated aging, the possible presence of a cardiovascular health problem causing a significant stiffness of blood vessels, or a regulatory dysfunction of the autonomic nervous system. If similar results are present 3 or more times in a row, it is recommended that one should have a thorough health checkup. Maintaining a healthy lifestyle may help to improve the baroreceptor reflex equilibrium;

Sympathetic Response to Valsalva Maneuver

Valsalva Maneuver assesses the sympathetic reaction to baroreflex activation. The subject is asked to grasp air and hold for 15 seconds. The test is divided into four phases. Phase 1 occurs during the first two to three seconds of the forced expiration and is associated with a brief decrease in HR and increase in BP due to mechanical compression of the aorta. In phase 2, BP first decreases and then increases in the latter part of the phase. Phase 3 describes the first one to two seconds after release of the expiratory strain with a consecutive decline in BP and increase in HR. Finally, phase 4 is associated with a BP overshoot due to persistent sympathetic activity together with normalization of venous return. In patients with autonomic dysfunction, typically there is a loss of both the BP overshoot and the reflex bradycardia.

Normal Sympathetic response to stimulation;

Excesses can be corrected by adrenocardic antagonists.
Depletion can be corrected by cholinergic antagonists to anti-oxidats or by better managment of chronic diseases that causes the deficits.

Valsalva Ratio: 1.25

The increased BP mediates baroreflex-induced bradycardia and is quantified using the Valsalva ratio (i.e. the ratio of the highest HR during expiration to the lowest HR during the first 20s after the release of strain).

Active Standing / Head-up Tilt

This test complements the autonomic evaluation of active standing. It is intended to evaluate for orthostatic intolerance. The patient performs active standing or head-up tilt, with monitoring of the pulse and BP. Symptoms of lightheadedness or syncope in conjunction with changes in pulse or BP constitute a positive test. In normal subjects, a decrease in BP related to the redistribution of blood due to gravity is observed, which, in turn, elicits the activation of baroreceptors. Feedback mechanisms activate the sympathetic nervous system while decreasing parasympathetic activity in order to reestablish BP levels.

Normal ANS response to stimulation;
Enhanced cardiovascular adaptation. The autonomic regulation of the functioning of the cardiovascular system provides enormous ability for a long-term adaptation to physical exertions and to adequately tolerate them. Typically this is a sign of the absence of physical exhaustion, overtraining or any cardiovascular health conditions. This is a typical pattern of a physically active healthy individual without any evident signs of physical exhaustion, overtraining or other conditions altering the regulatory functions of the autonomic nervous system or a cardiovascular response to it;

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A sympathetic surge, and parasympathetic withdrawal, may lead to an increase in chronotropy, peripheral vasoconstriction, and maintenance of blood pressure.

30/15 Ratio: 1.26

30/15 ratio evaluate the initial cardiac responses to active standing up. This is the ratio between the shortest R wave to R wave (RR) interval around the 15th heart beat and the longest RR interval around the 30th heart beat after standing up. Atropine abolishes the bradycardiac response, indicating that the 30/15 ratio is a parameter of cardiovagal function. A fall in systolic pressure of at least 20mmHg or in diastolic pressure of at least 10mmHg within two minutes of standing or head-up tilt is considered to define orthostatic hypotension.

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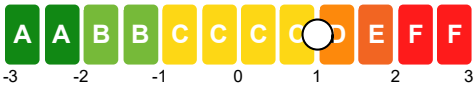
Accumulative Stress Assessment

Stress is a part of everyday life. How an individual handles stress is what's important. If not handled properly, stress becomes distress. If an individual's stress is related to situations they have to cope with daily and the emotional states that result, the stress is termed mental stress. If the stress is caused by long term exposure to negative factors that result in physical illness or stress from a physical illness, this is termed accumulative physical stress.

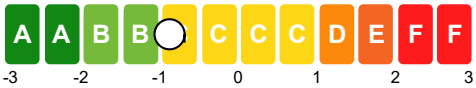
Autonomic Physical Dysregulation (PSI): 1.01



The Physical Stress Index (PSI) is an indicator of accumulative chronic physical stress. Physical stress can be caused by long-term exposure to negative factors in one's life or physical illness. The way in which a person copes with physical stressors is a significant contributing factor to this process. When the stress becomes too great, the body will show signs of distress. Many people consider stress to be exclusively mental wherein excessive pressures, anxieties and worrying lead to feeling overburdened and under strain. However, stress includes all physical, emotional, mental, chemical and biochemical deviations from homeostasis (physiological stability). Physical stress in humans arises as a result of our body's response to physical stressors like work, noise, cold, illness, or exercise. Other lifestyle or social factors such as smoking, immobility, heavy drinking and lack of sleep produce considerable stress in the body. When the total amount of stress is greater than your body can adequately compensate for, the signs and symptoms of stress begin to appear. Signs of physical stress can include muscle tension, shallow breathing, hypertension, headaches, and a rapid heartbeat which when left untreated can result in a number of ailments including heart disease, ulcers, asthma and rheumatism.

The score is clearly above average. It indicates high physical stress. Stress in the recent past has had a major impact on your physical balance. The negative effects of physical stress are clearly visible. It is possible that you experience physical inconveniences as myalgia, back complaints, palpitations and reduced resistance to illness.

Accumulative Mental Stress (MSI): -0.88



The Mental Stress Index (MSI) is an indicator of accumulative mental stress. When the stress becomes too great, the body will show signs of distress. Most people are abundantly familiar with mental stress as modern life tends to generate copious amounts of it. People recognize a state of having too much expected of them, of being under pressure or strain, of being barely able to cope with some external demand which is both excessive and prolonged. It has a number of synonyms, but they all carry the connotation of unreasonable demands being placed on the individual in an emotional, mental or psychological sense. In short, psychological or mental stress refers to the emotional and physiological reactions experienced when an individual confronts a situation in which the demands go beyond their coping resources.
Mental stress can manifest itself in behavioral, cognitive or emotional symptoms which may range from poor judgment to moodiness to depression. If left unchecked, mental stress can accumulate, thereby increasing its impact on overall health. The body's ability to cope decreases and the risk of further complications to both mental and physical well-being increases. Research indicates that mental stress is intimately linked to illness and disease. Constant and cumulative stress can compromise the immune system and mental well-being which increases susceptibility, decreases the strength of the body's natural defenses and affects thought processes.

The score is below average. It indicates low mental stress. Stress in the recent past has had little effect on your mental-health. The negative effects of mental stress are limited.

Functional Age: 56 years

Physician`s Notes:

Demo Patient
Gender: Male
Age: 51 (DOB: Jan 1 1966)
Weight: 183 lbs
BMI: 27
Height: 5 ft 9 in

Physician Only Report
Exam Date: Sep 11 2017 14:57

Sudomotor Assessment

Sudomotor sympathetic response (SSR)

SSR measures change of the electrical potential of the skin. The recorded skin potential comes from the activated eccrine sweat gland. The amplitude and configuration are adjusted by sweat gland epithelium and the overlying epidermis. These tests use an electric current to stimulate sympathetic nerves. The tests measure the change in electrical resistance, which is altered in the presence of sweat. SSR using a recording electrode on the hands and feet, because these recording sites yield higher amplitudes. Waveforms are usually triphasic, with an initial small negativity followed by a large positive wave, and a subsequent prolonged negative wave. Waveforms can also be monophasic or diphasic with an initial negative or positive peak. Maximal peak-to-peak amplitudes and mean latencies are measured. The SSR measures change of epidermal resistance due to sudomotor sweat gland activity and sweat gland nerve density.

Sudomotor Neuropathy: 11 %

No clear sign of Sudomotor dysfunction.

Physician`s Notes:

Demo Patient
Gender:Male
Age:51 (DOB: Jan 1 1966)
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BMI:27
Height:5 ft 9 in

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Vascular Assessment

Ankle-Brachial Index (ABI)

ABI test is a quick, noninvasive way to check your risk of peripheral artery disease (PAD). Peripheral artery disease is a condition in which the arteries in your legs or arms are narrowed or blocked. People with peripheral artery disease are at an increased risk of heart attack, stroke, poor circulation and leg pain. ABI test compares your blood pressure measured at your ankle with your blood pressure measured at your arm. A low ankle-brachial index number can indicate narrowing or blockage of the arteries in your legs, increasing your risk of circulatory problems, and possibly causing heart disease or stroke.

Ankle/Brachial Index: 1.04

ABI < 0.4: Severe arterial disease, severe obstruction
0.4 - 0.7: Moderate arterial disease, moderate obstruction
0.7 - 0.9: Some arterial disease, mild obstruction
0.9 - 1.0: Acceptable, Borderline
1.0 - 1.4: Normal range
ABI > 1.4: Abnormal Vessel hardening from PVD

Normal range

Toe/Brachial Index: 1.15

TBI < 0.66: Abnormal range
0.66 - 0.75: Acceptable, Borderline
TBI > 0.75: Normal range

Normal range

Coronary Artery Disease (CAD)

CAD occurs when the blood vessels that transport blood to the heart are narrowed and hardened due to plaque buildup (atherosclerosis). This narrowing compromises the flow of nutrient-rich, oxygenated blood to vital organs which can lead to stroke, heart attack and death.
The beat to beat blood pressure and PPG signal is obtained through a biosensor affixed to the fingertip. Fluctuations in the BP and PPG signal represent changes in blood volume may indicate variations in perfusion. The pulse waveform is induced by a combination of the pressure wave and respiratory sinus arrhythmia produced by controlled breathing exercises.

Coronary Respiratory Response: 12.6

Acceptable, Borderline

Physician`s Notes:

Demo Patient
Gender: Male
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Endothelial Dysfunction - Pulse Wave Velocity Analysis (PWV)

PWV gives you a quick and objective answer to how the vascular system is working. PWV is an excellent analysis to evaluate vascular endothelial dysfunction. This represent the elasticity of the artery. Arteries that are atherosc lerotic, arteriosclerotic, or hardened (having reduced elasticity and increased narrowing) place an extra strain on the heart, valves, and arteries which can lead to stroke, heart attack, kidney failure and/or sudden death. The pulse wave is a physiological phenomenon, observable and measurable in the arterial system during blood circulation. During one heart systole a certain blood volume is expelled. This propagates through the arteries due to the reciprocal transformation between kinetic energy of a segment of the expelled blood volume and the potential energy of a stretched segment of the resilient vascular wall. The changes in pressure, blood flow, velocity and profile throughout the whole pulse wave. It can be used for classification of the artery elasticity.

Ejection Elasticity Index (EEI): 0.7

EEI is an indicator for left ventricle ejection power and elasticity of the large arteries. Possible causes include: hypertension, obesity, metabolic syndrome, diabetes, reduced left ventricular ejection fraction and atherosclerosis.

Borderline Normal Blood Circulation

Dicrotic Dilation Index (DDI): 0.64

DDI indicates the contractility and stiffness in the small arteries. Possible causes include: hypertension, obesity, metabolic syndrome, diabetes, and arteriosclerosis.

Borderline Normal Blood Circulation

Dicrotic Elasticity Index (DEI): 0.52

DEI represents the blood flow in the venous system and elasticity of the peripheral arteries. Possible causes may include: hypertension, obesity, metabolic syndrome, diabetes, arteriosclerosis and Raynaud's phenomenon/disease.

Normal Blood Circulation

Augmentation Index (AI): -0.28

Augmentation Index measures arterial stiffness. Arteries stiffen for a number of reasons including age, high cholesterol, smoking and diabetes.
The stiffer and more hardened an artery is, the more difficult it is for blood to flow through the body. To compensate for inefficient blood flow, the heart must work harder.
Augmentation index is calculated using pulse wave velocity. A ratio is calculated from the blood pressure waveform derived from PWV analysis. AI is widely used as a measure of the augmentation of central aortic pressure by a reflected pulse wave.

Pulse Oximetry (SpO2): 96.44

Pulse oximetry measures the amount of oxygen in the blood through a finger clip test. A range of 96% to 100% oxygen in the blood is generally considered normal. Anything below 90% could quickly lead to life-threatening complications. Knowing this is very useful for patients with respiratory and/ or cardiac problems, especially those with Chronic Obstructive Pulmonary Disease (COPD). It is also useful in diagnosing sleep disorders such as sleep apnea. Being anemic may be a cause of low oxygen saturation.

Physician`s Notes:

Demo Patient
Gender: Male
Age: 51 (DOB: Jan 1 1966)
Weight: 183 lbs
BMI: 27
Height: 5 ft 9 in

Physician Only Report
Exam Date: Sep 11 2017 14:57

ECG Assessment

The normal heart rate and rhythm are determined by the sino-atrial node in the right atrium. This node discharges electric current through the atria causing them to contract. The electric current then passes through the atrioventricular (AV) node which lies within the lower interatrial septum. Electrical impulses pass, and excite the ventricular muscles causing their contraction.

Extrasystoles (premature beats) are essentially extra beats, or contractions, which interrupt the normal regular rhythm of the heart. They occur when there is electrical discharge from somewhere in the heart other than the sino-atrial node. They are classified as atrial or ventricular extrasystoles according to their site of origin.

Extrasystoles can occur frequently in people with completely normal hearts and often do not cause any problems. In a healthy heart, extra beats occur in the following situations: excessive consumption of coffee, tobacco abuse, emotions, stress and chemical stimulants.
However, they can also be a feature of certain cardiac diseases, coronary artery disease, cardiomyopathy, mitral regurgitation may lead to arrhythmia.

Ventricular Extrasystole (PVC): 0

Atrial Extrasystole (PAC): 0

Artifacts: 1

Physician`s Notes:

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Demo Patient
Gender: Male
Age: 51 (DOB: Jan 1 1966)
Weight: 183 lbs
BMI: 27
Height: 5 ft 9 in

Physician Only Report
Exam Date: Sep 11 2017 14:57

Metabolic Report

BMI is a useful measure of overweight and obesity. It is calculated from your height and weight.
BMI is an estimate of body fat and a good gauge of your risk for diseases that can occur with more body fat. The higher your BMI, the higher your risk for certain diseases such as heart disease, high blood pressure, type 2 diabetes, gallstones, breathing problems, and certain cancers. Although BMI can be used as a guide, it does have some limits:
- It may overestimate body fat in athletes and others who have a muscular build.
- It may underestimate body fat in older persons and others who have lost muscle.
- It does not measure a person's metabolism Unfortunately, obesity has become an epidemic in our society. For people who are considered obese (BMI greater than or equal to 30) or those who are overweight (BMI of 25 to 29.9) and have two or more risk factors (such as hypertension, high blood sugar, inactivity, cigarette smoking), it is recommended that you lose weight. People who are overweight, do not have a high waist measurement, and have fewer than two risk factors may need to prevent further weight gain rather than lose weight.
The good news is even a small weight loss (between 5 and 10 percent of your current weight) will help lower your risk of developing those diseases. Obesity, metabolic syndrome, and diabetes are all on the rise and play a significant part as risk factors for cardiovascular disease.

Risk of Associated Disease According to BMI and Waist Size

18.5 or less: Underweight - N/A
19 - 25: Normal - very low risk of associated diseases
26 - 29: Overweight - prone to health risks
30 - 40: Overweight to Obese - high risk of associated diseases
40 or greater: Extremely Obese - very high risk of associated diseases

Body Mass Index (BMI): 27

Body mass index is defined as the individual's body weight divided by the square of his or her height. The body mass index can be used to identify if you are overweight.

Overweight - prone to health risks

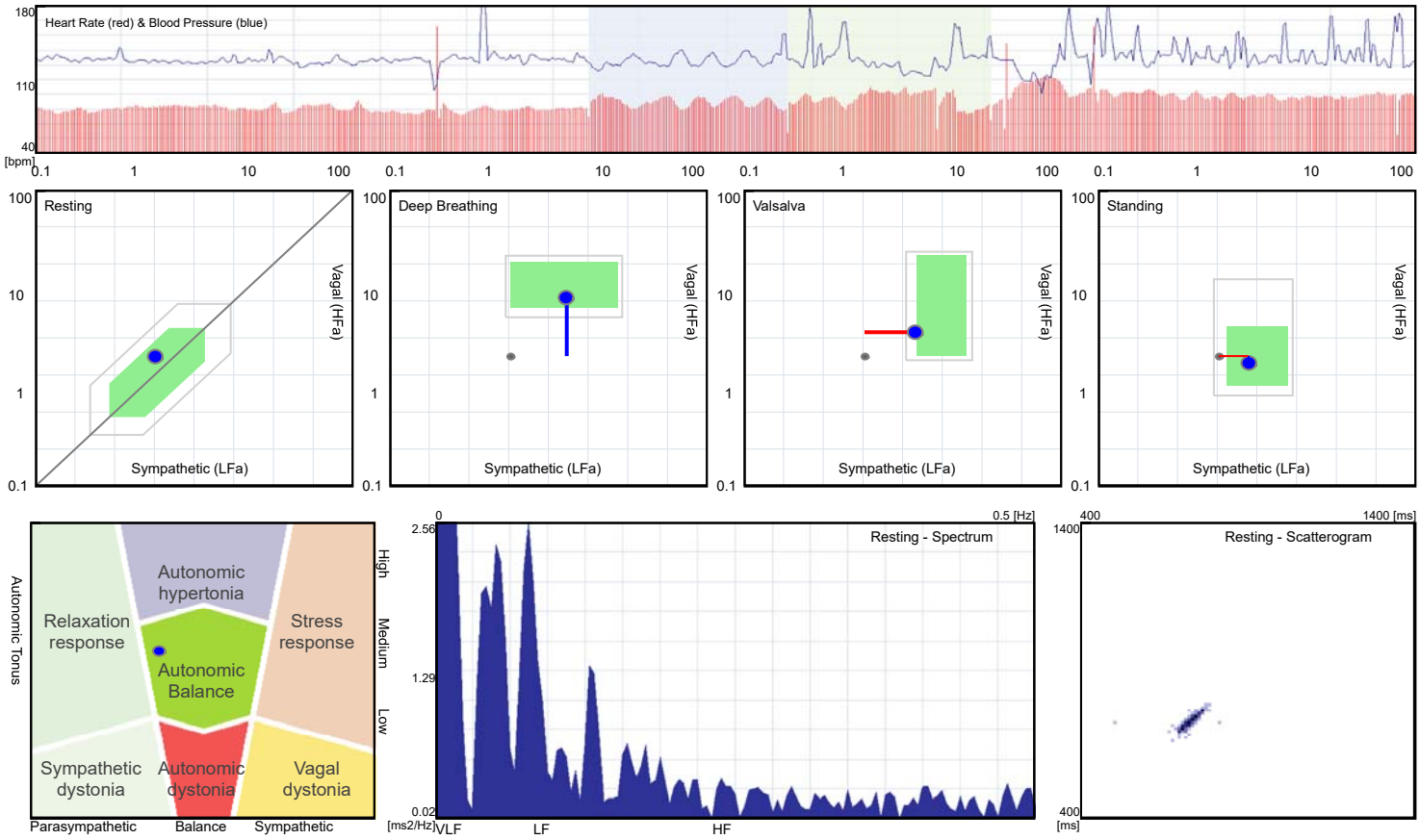
Physician`s Notes:

VitalScan

AUTONOMIC NERVOUS SYSTEM FUNCTION

Demo Patient
Gender: Male
Age: 51 (DOB: Jan 1 1966 12:00)
Weight: 183 lbs
BMI: 27
Height: 5 ft 9 in

Physician Only Report
Exam Date: Sep 11 2017 14:45



	Duration	HR	BP	RMF	LFa	HFa	LFa/HFa	LF/HF	TSP	SDNN	rmsSD	SpO2
Resting	179	82	128/71	0.23	**1.38 N**	**2.07 N**	**0.67 L**	1.04	1304.32	28.09	15.64	97
Deep Breathing	59	89	117/77	0.2	4.71	**7.97 N**	0.59	0.91	2962.97	48.36	25.65	97
Valsalva	59	91	132/99	0.11	**4.15 N**	3.62	1.15	1.56	2136.15	49.59	21.01	97
Standing	119	95	125/86	0.19	**2.65 N**	**1.75 N**	1.52	1.13	1176.63	35.1	15.55	93

Signal Quality = Resting: Good Deep Breathing: Good Valsalva: Good Standing: Good

Autonomic Tonus = 67.66 N E/I Ratio = 1.15 N Valsalva Ratio = 1.25 N 30:15 Ratio = 1.26 N

Resting: Borderline normal level of sympathetic and parasympathetic tone;

Deep Breathing: Normal Parasympathetic response to stimulation;

Valsalva: Normal Sympathetic response to stimulation;

Standing: Normal ANS response to stimulation; Enhanced cardiovascular adaptation. The autonomic regulation of the functioning of the cardiovascular system provides enormous ability for a long-term adaptation to physical exertions and to adequately tolerate them. Typically this is a sign of the absence of physical exhaustion, overtraining or any cardiovascular health conditions. This is a typical pattern of a physically active healthy individual without any evident signs of physical exhaustion, overtraining or other conditions altering the regulatory functions of the autonomic nervous system or a cardiovascular response to it;

Physician`s Notes:

All results and analysis should be considered in the context of persons/candidate's case history, symptoms, diagnosis, current medications, treatment plans and therapies.
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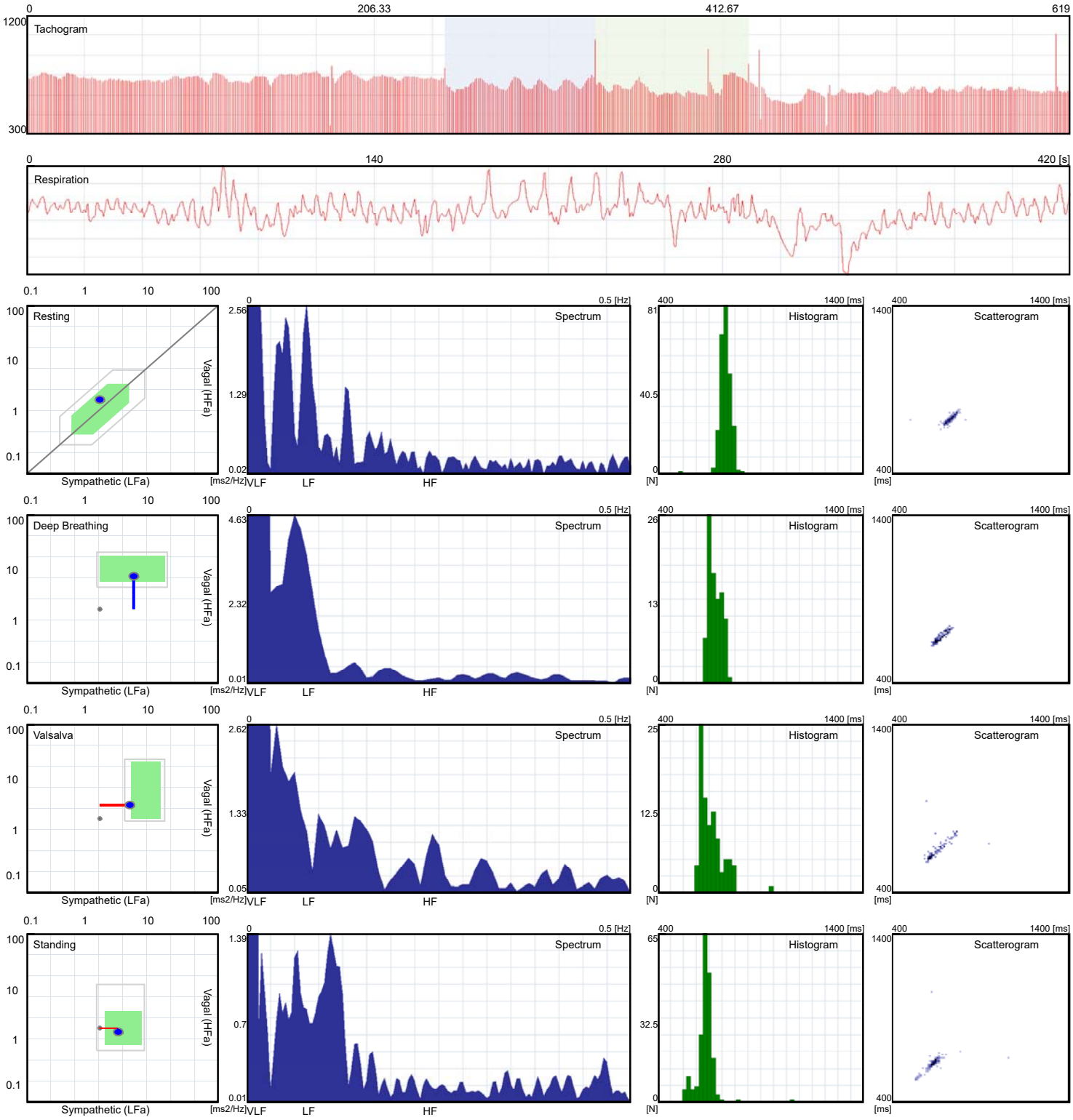
VitalScan

Autonomic Nervous System Function - Graphics

Demo Patient
Gender: Male
Age: 51 (DOB: Jan 1 1966 12:00)
Weight: 183 lbs
BMI: 27
Height: 5 ft 9 in

Physician Only Report
Exam Date: Sep 11 2017 14:45



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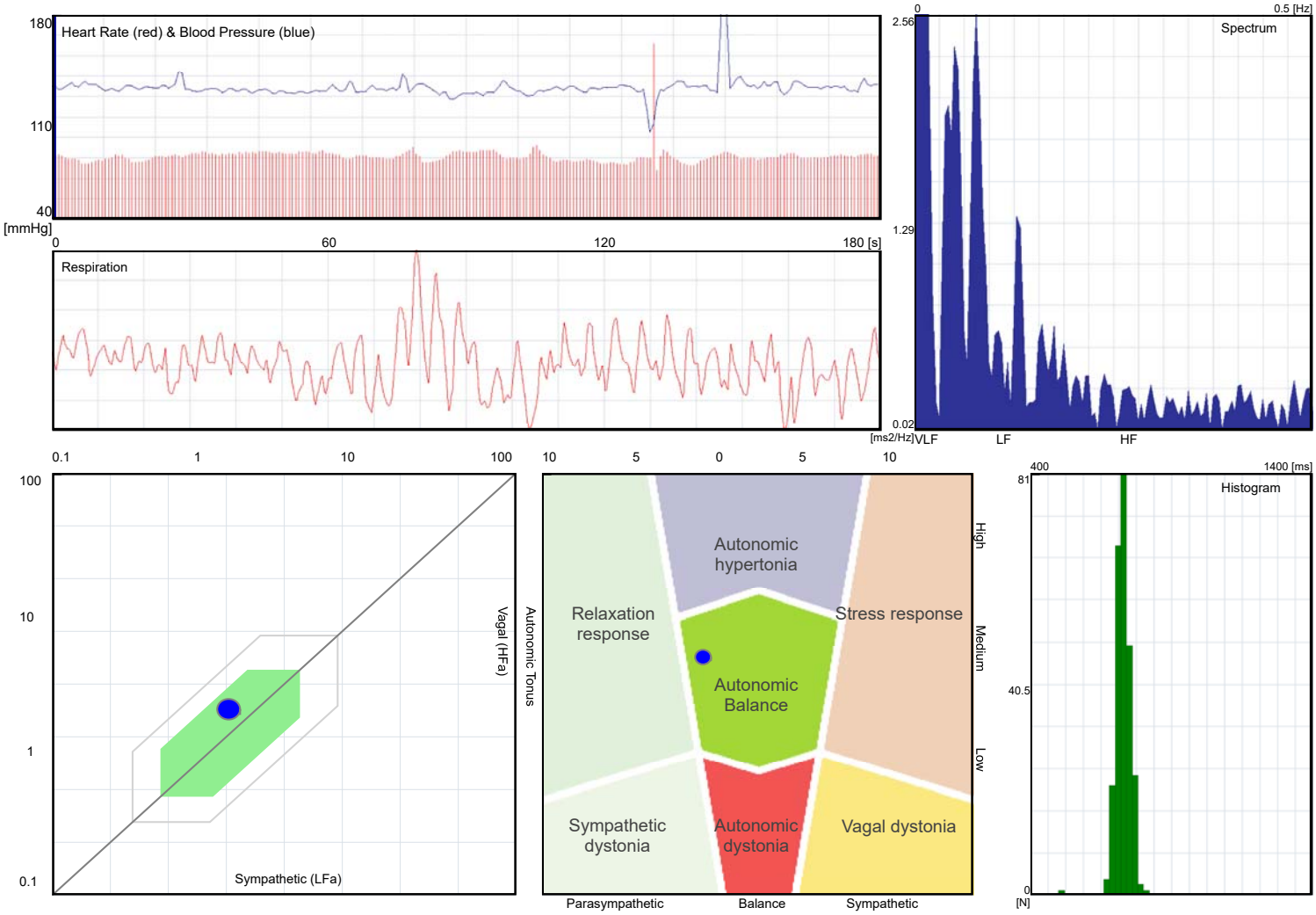
VitalScan

AUTONOMIC BALANCE - RESTING

Demo Patient
Gender: Male
Age: 51 (DOB: Jan 1 1966 12:00)
Weight: 183 lbs
BMI: 27
Height: 5 ft 9 in

Physician Only Report
Exam Date: Sep 11 2017 14:45



HeartBeats = 247 Artifacts = 2 (0.8%) Signal Quality = Good

Autonomic Tonus = 67.66 N

	value	normal	borderline	high	low
LFa	**1.38**	0.5-4	0.3-0.5	>7	<0.3
HFa	**2.07**	0.5-4	0.3-0.5	>7	<0.3
LFa/HFa	**0.67**	0.4 to 3		> 3	< 0.4

HR	82	**BP**	128/71	**RMF**	0.23
VLF	110.24	**LF**	169.12	**HF**	162.06
SDNN	28.09	**rmsSD**	15.64	**pNN50**	2
TSP	1304	**LF/HF**	1.04	**SpO2**	97

HR,PD - bpm; RMF - Hz; VLF,LF,HF,TSP - ms^2; HFa,LFa - bpm^2

Borderline normal level of sympathetic and parasympathetic tone;

Physician`s Notes:

All results and analysis should be considered in the context of persons/candidate's case history, symptoms, diagnosis, current medications, treatment plans and therapies.
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VitalScan

AUTONOMIC NERVOUS SYSTEM FUNCTION

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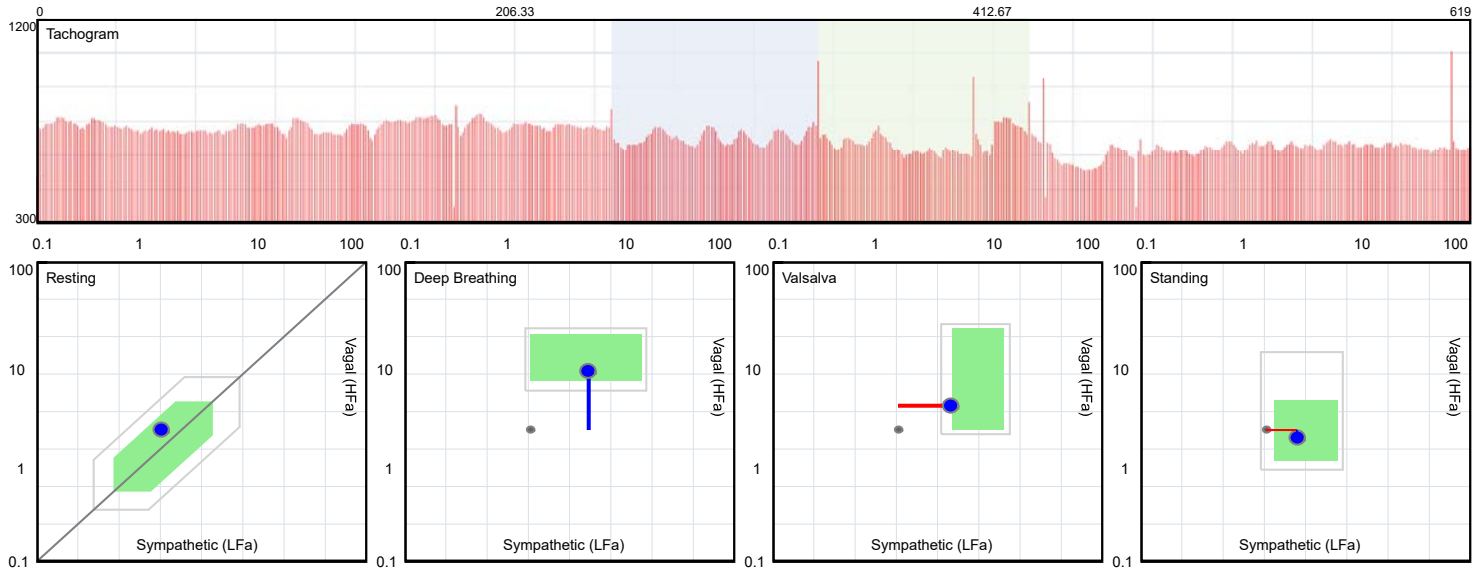

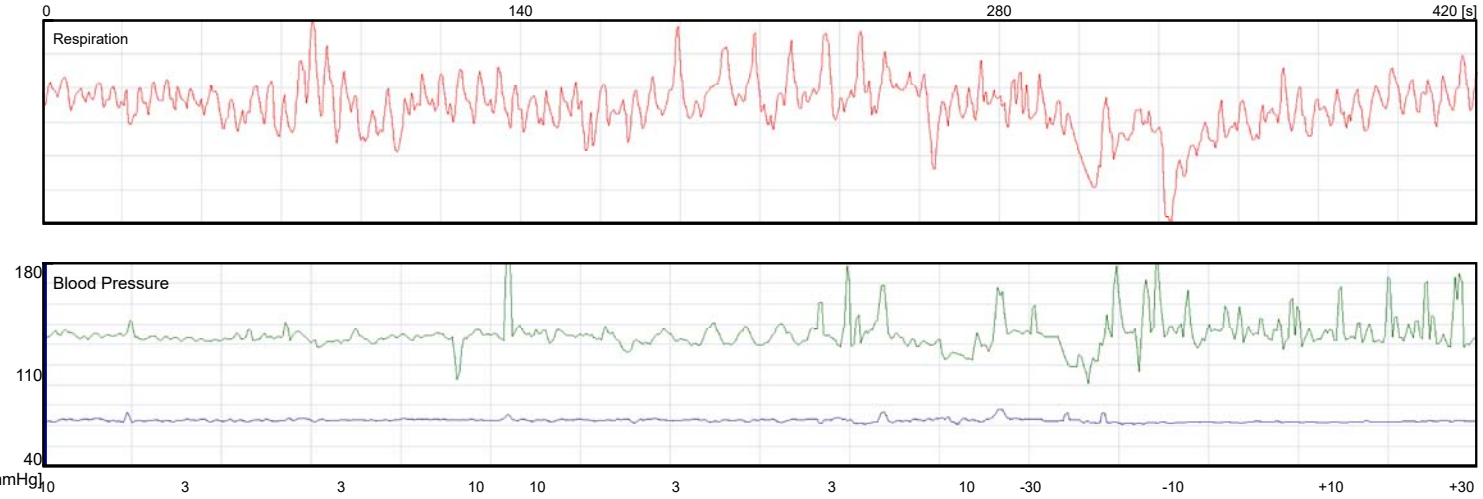

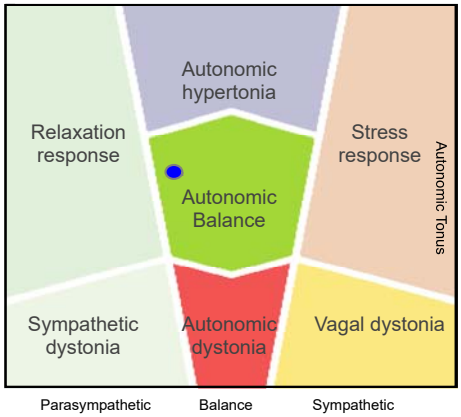

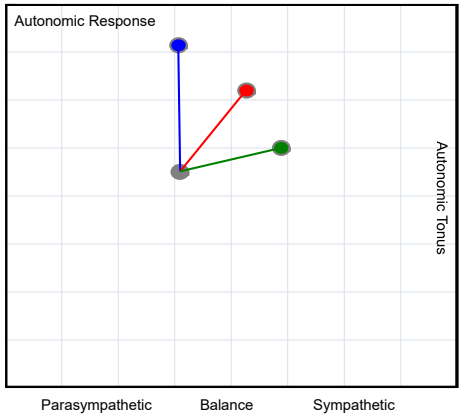

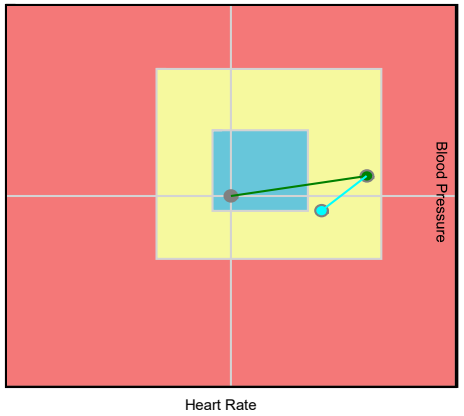

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VitalScan

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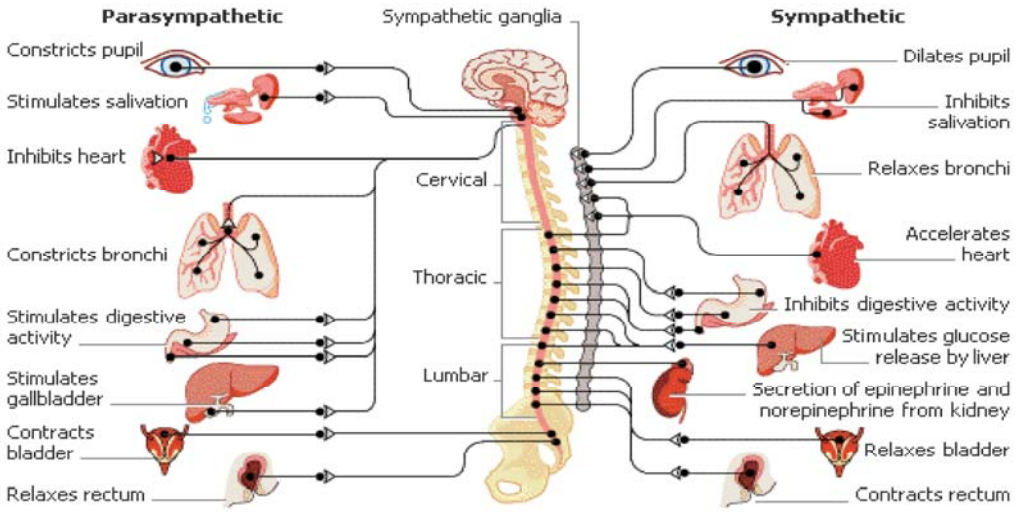

Non-Invasive Autonomic Nervous System Monitoring

Your nervous system is comprised of three parts:
1) Somatic (or sensory) nervous system
2) Motoric Nervous System
3) Autonomic Nervous System (ANS)

Your ANS is that part of your nervous system which functions to sustain your life by helping to control your heart, lungs, digestive system, blood pressure, immune system, certain reflexes, such as coughing and gagging, fluid balance, pupil diameter, sweating and sexual function.

Your ANS Consists of Two Parts (branches). There are two parts, or branches to your ANS
1) Sympathetic branch
2) Parasympathetic branch

Generally, the sympathetic branch is more in control when you are stressed, nervous, or excited, while the parasympathetic branch is more in control when you are relaxing, sleeping, or recovering from an illness or injury.
A balance between the two branches of your ANS is essential for good health. In fact, most illnesses and injuries cause or result from an imbalance between these two branches. An imbalance in your ANS can tell your doctor many things about how healthy you are as well as what can be done to keep you as healthy as possible.

ANS monitoring records your heart rate variability and respiratory activity. Your heart rate variability and respiratory activity are analyzed by a computer to determine how your ANS is controlling your heart and your lungs and other parts of your body. Your physician then interprets your results produced by the computer.

What is Heart Rate Variability (HRV)?
Heart rate variability (HRV) is a measure of your heart's ability to quickly respond to changes in your level of activity. Moderate variability is healthy. Too much or too little is unhealthy. ANS monitoring using HRV can provide your doctor with information that cannot be seen using other measures, for example on an EKG recording.

Why is including respiratory activity important?
Analyzing your respiratory activity along with your HRV is key to monitoring the balance between the two branches of your autonomic nervous system.

Why is ANS monitoring important?
Everyone is different, and so is their autonomic nervous system. How an individual responds to disease, injury, medicines and medical treatments largely depends on her or his ANS. By monitoring your ANS, your doctor can determine whether she or he is doing enough to keep you healthy. In this way, your doctor can better care for you and better maintain your well-being.

Who should be monitored?
Everyone from children to older adults can and should have their ANS monitored. Frequent monitoring, when indicated, helps your doctor better maintain your health and well-being and tailor treatments, including medications, especially for you.

Physician`s Notes:

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VitalScan

AUTONOMIC NERVOUS SYSTEM FUNCTION

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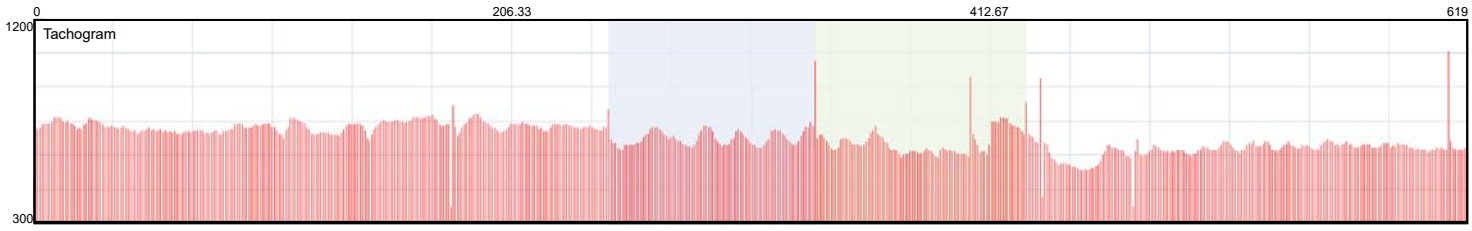

	Duration	HR	BP	RMF	LFa	HFa	LFa/HFa	LF/HF	TSP	SDNN	rmsSD	SpO2
Resting	179	82	128/71	0.23	**1.38 N**	**2.07 N**	**0.67 L**	1.04	1304.32	28.09	15.64	97
Deep Breathing	59	89	117/77	0.2	4.71	**7.97 N**	0.59	0.91	2962.97	48.36	25.65	97
Valsalva	59	91	132/99	0.11	**4.15 N**	3.62	1.15	1.56	2136.15	49.59	21.01	97
Standing	119	95	125/86	0.19	**2.65 N**	**1.75 N**	1.52	1.13	1176.63	35.1	15.55	93

Signal Quality = Resting: Good Deep Breathing: Good Valsalva: Good Standing: Good

Autonomic Tonus = 67.66 N E/I Ratio = 1.15 N Valsalva Ratio = 1.25 N 30:15 Ratio = 1.26 N

RESTING:
Borderline normal level of sympathetic and parasympathetic tone;

DEEP BREATHING:
Normal Parasympathetic response to stimulation;

VALSALVA:
Normal Sympathetic response to stimulation;

STANDING:
Normal ANS response to stimulation; Enhanced cardiovascular adaptation. The autonomic regulation of the functioning of the cardiovascular system provides enormous ability for a long-term adaptation to physical exertions and to adequately tolerate them. Typically this is a sign of the absence of physical exhaustion, overtraining or any cardiovascular health conditions. This is a typical pattern of a physically active healthy individual without any evident signs of physical exhaustion, overtraining or other conditions altering the regulatory functions of the autonomic nervous system or a cardiovascular response to it;

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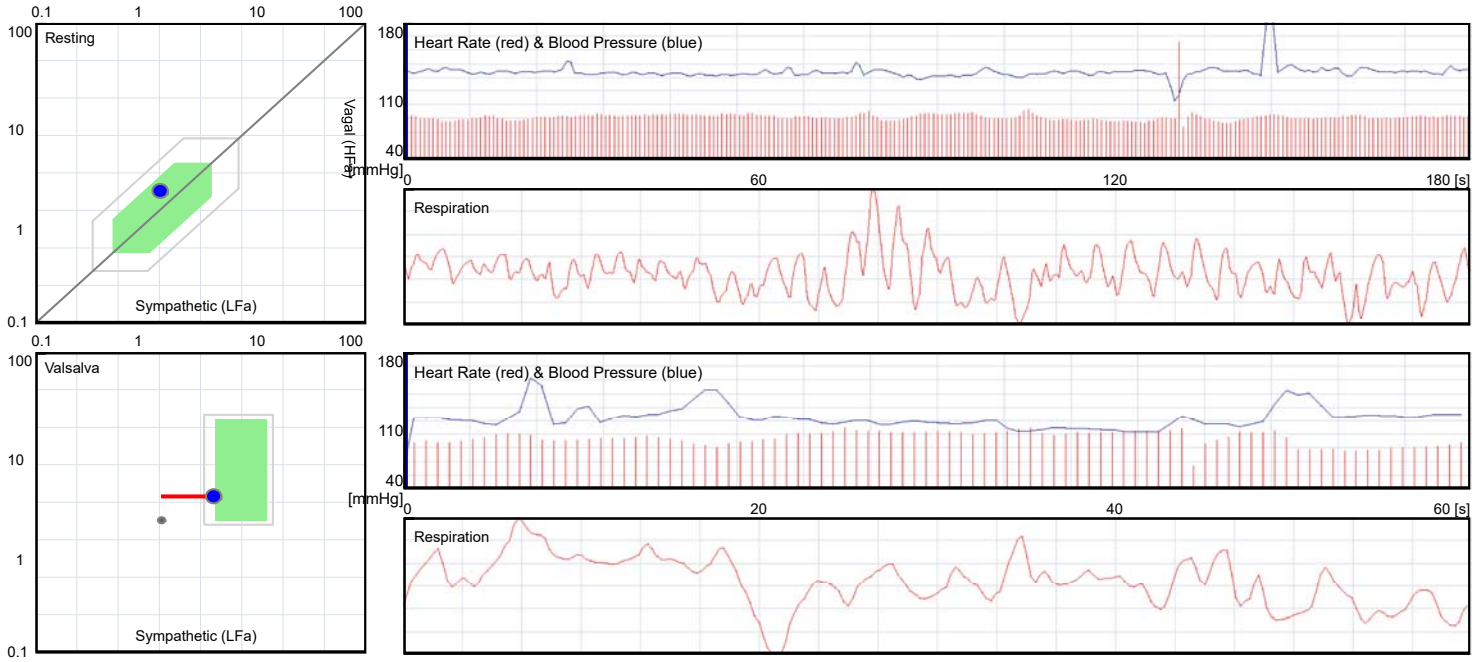
VitalScan

Autonomic Nervous System Function - Sympathetic

Demo Patient
Gender: Male
Age: 51 (DOB: Jan 1 1966 12:00)
Weight: 183 lbs
BMI: 27
Height: 5 ft 9 in

Physician Only Report
Exam Date: Sep 11 2017 14:45



Signal Quality = Resting: Good Valsalva: Good

RESTING

	value	normal	borderline	high	low
LFa	**1.38**	0.5-4	0.3-0.5	>7	<0.3
HFa	**2.07**	0.5-4	0.3-0.5	>7	<0.3
LFa/HFa	**0.67**	0.4 to 3		> 3	< 0.4

HR	82	**BP**	128/71	**RMF**	0.23
VLF	110.24	**LF**	169.12	**HF**	162.06
SDNN	28.09	**rmsSD**	15.64	**pNN50**	2
TSP	1304	**LF/HF**	1.04	**SpO2**	97

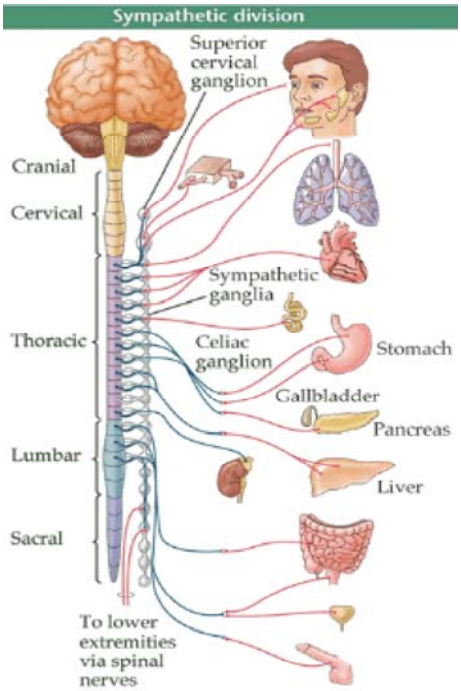
VALSALVA

	value	normal	bl low	bl high	high	low
LFa	**x3**	x3-9	x2-3	x9-10	>x10	<x2
Ratio	**1.25**	>1.2				<1.2
BP	132/99					

Autonomic Tonus = 67.66 N Valsalva Ratio = 1.25 N

Resting: Borderline normal level of sympathetic and parasympathetic tone;

Valsalva: Normal Sympathetic response to stimulation;



Physician`s Notes:

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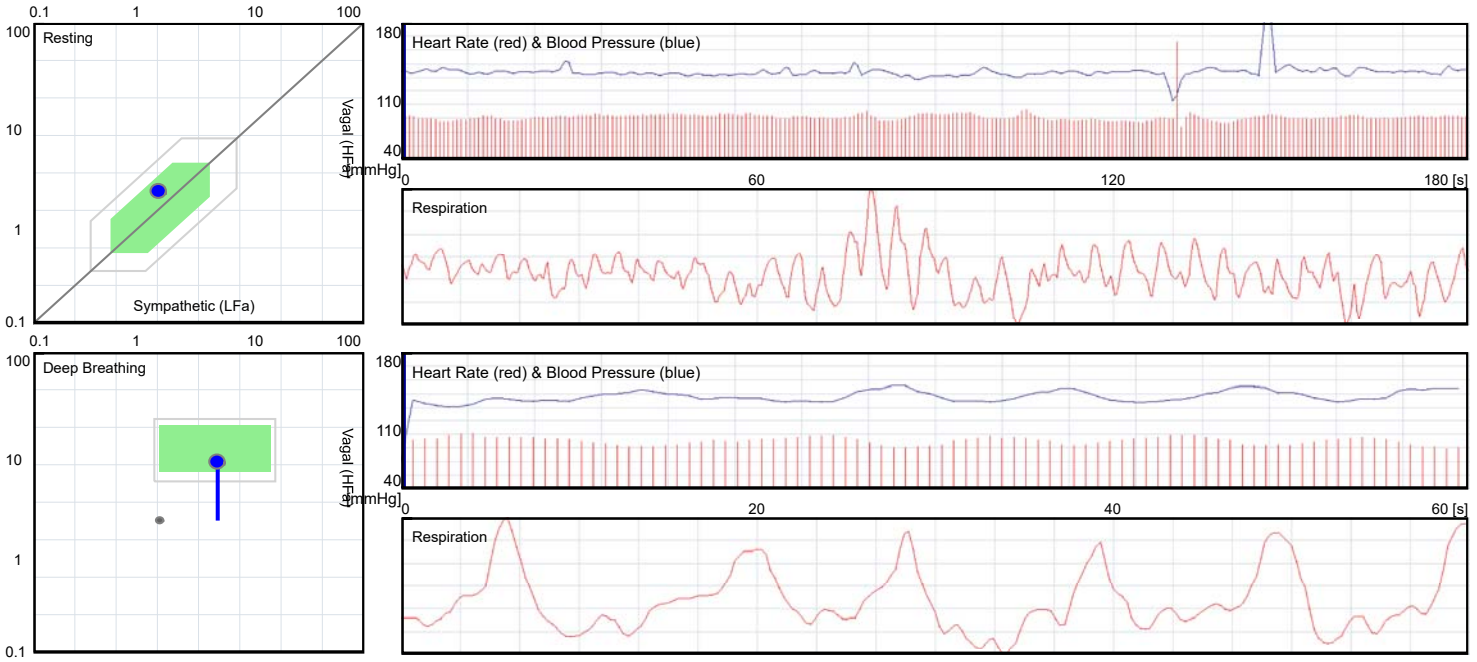
Printed: Sep 25 2017 09:07

VitalScan

Autonomic Nervous System Function - Parasympathetic

Demo Patient
Gender: Male
Age: 51 (DOB: Jan 1 1966 12:00)
Weight: 183 lbs
BMI: 27
Height: 5 ft 9 in

Physician Only Report
Exam Date: Sep 11 2017 14:45



Signal Quality = Resting: Good Deep Breathing: Good

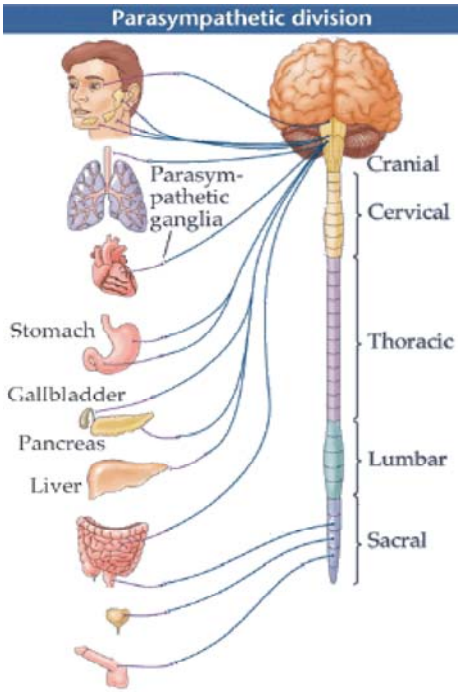
RESTING

	value	normal	borderline	high	low
LFa	**1.38**	0.5-4	0.3-0.5	>7	<0.3
HFa	**2.07**	0.5-4	0.3-0.5	>7	<0.3
LFa/HFa	**0.67**	0.4 to 3		> 3	< 0.4

HR	82	**BP**	128/71	**RMF**	0.23
VLF	110.24	**LF**	169.12	**HF**	162.06
SDNN	28.09	**rmsSD**	15.64	**pNN50**	2
TSP	1304	**LF/HF**	1.04	**SpO2**	97

DEEP BREATHING

	value	normal	bl low	bl high	high	low
HFa	**x3.85**	x3-9	x2-3	x9-10	>x10	<x2
E/I Ratio	**1.15**	>1.1				<1.1
BP	117/77					



Autonomic Tonus = 67.66 N E/I Ratio = 1.15 N

Resting: Borderline normal level of sympathetic and parasympathetic tone;

Deep Breathing: Normal Parasympathetic response to stimulation;

Physician`s Notes:

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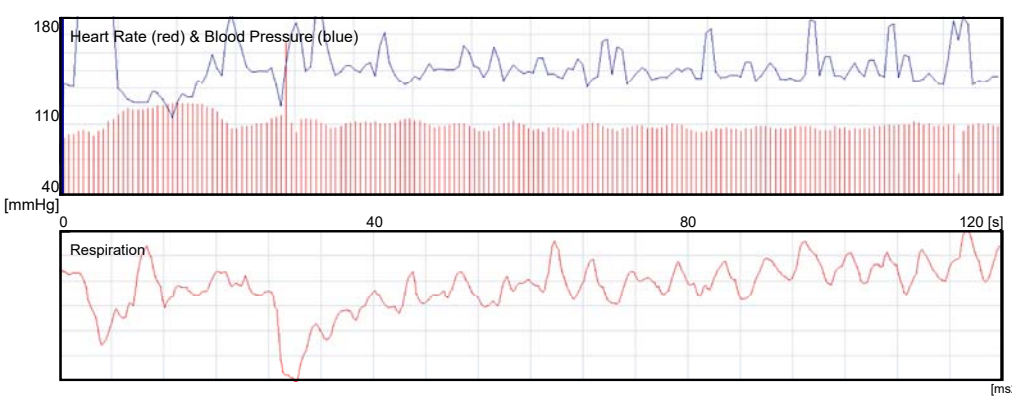
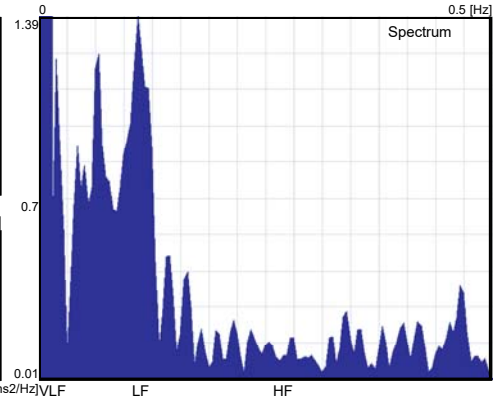
VitalScan

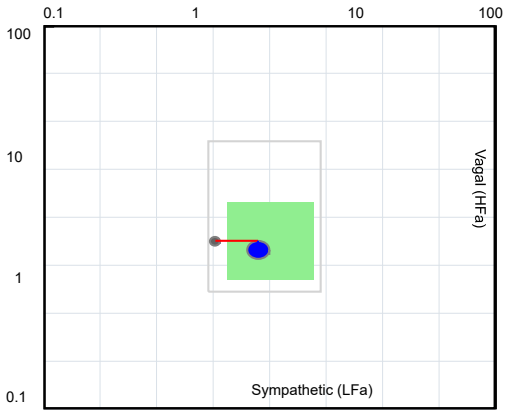
AUTONOMIC BALANCE - STANDING

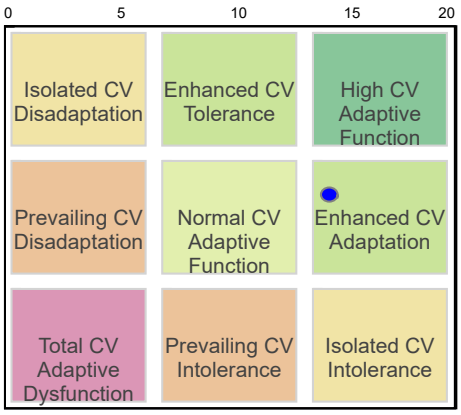
Demo Patient
Gender:Male
Age:51 (DOB: Jan 1 1966 12:00)
Weight:183 lbs
BMI:27
Height:5 ft 9 in

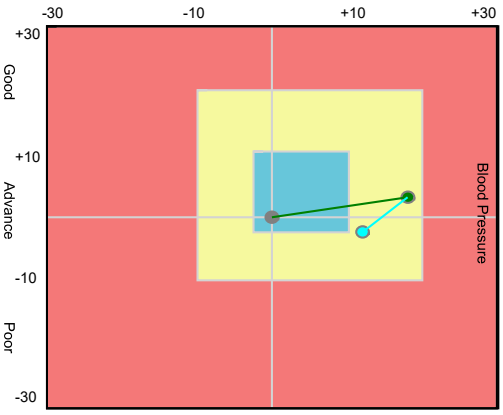
Physician Only Report
Exam Date:Sep 11 2017 14:45

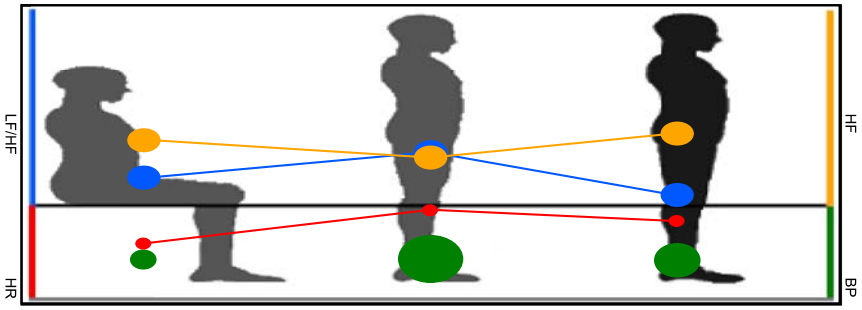












	Resting	Standing 1	Standing 2
HR	82	97	92
LF%	12.97	12.84	11.22
HF%	12.43	9.44	13.51
SDNN	28.09	34.45	59.31
BP	128	132	125
LF/HF	1.04	1.36	0.83

Total HeartBeats = 190 Artifacts = 1 (0.5%) Signal Quality = Good

	value(re->st)	ratio(st/re)	normal	borderline	high	low
HFa	2.07->1.75	**0.84**	<2	2-6	>6	
LFa	1.38->2.65	**1.92**	1.2-4.5	4.5-5	>5	<0.9
LFa/HFa	0.67->1.52	2.27	1.2-5	0.9-1.2	>5	<0.9
HR	82->95	1.16	>1.1	1-1.1	>30	<1
30:15 Ratio	**1.26**		>1.1			<1.1
TSP	1176	**LF/HF**	1.13	**RMF**	0.19	
SDNN	35.1	**rmsSD**	15.55	**pNN50**	3	
SDSD	15.54	**PH**	39	**SpO2**	93	

HR,PD - bpm; RMF - Hz; VLF,LF,HF,TSP - ms^2; HFa,LFa - bpm^2

Normal ANS response to stimulation; Enhanced cardiovascular adaptation. The autonomic regulation of the functioning of the cardiovascular system provides enormous ability for a long-term adaptation to physical exertions and to adequately tolerate them. Typically this is a sign of the absence of physical exhaustion, overtraining or any cardiovascular health conditions. This is a typical pattern of a physically active healthy individual without any evident signs of physical exhaustion, overtraining or other conditions altering the regulatory functions of the autonomic nervous system or a cardiovascular response to it;

Physician`s Notes:

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VitalScan

ECG ANALYSIS REPORT

Demo Patient
Gender: Male
Age: 51 (DOB: Jan 1 1966 12:00)
Weight: 183 lbs
BMI: 27
Height: 5 ft 9 in

Physician Only Report
Exam Date: Sep 11 2017 14:45

Recorded time	
Start Date	2017-09-11 14:45:24
Duration	3 min (248 beats)
High Pass Filters	3.4 Hz

Heart Rate	
Average Heart Rate	82 bpm
Fastest rate	89 bpm
Slowest rate	77 bpm

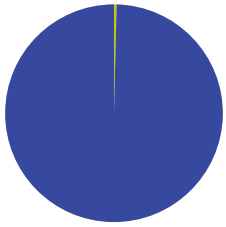
Ventricular Details	
PVC - Ventricular Ectopy	0 beats (0%)
Ventricular Couplet	0 episodes

Supraventricular Details	
PAC - Supraventricular Ectopy	0 beats (0%)
Supraventricular Couplet	0 episodes

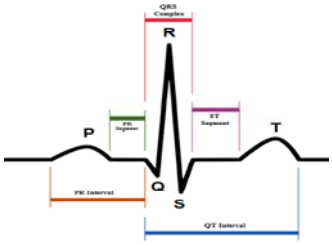
Pause / Block	
Irregular / Artifact beat	1 beats (0.4%)

HRV Analysis	
SDNN	23 ms

QRS Analysis	
QRS	53 ms
QT / QTc	301 ms / 354 ms
PR int / seg	108 ms / 63 ms
ST int / seg	245 ms / 115 ms



PAC - Atrial Extrasystole: 0%
PVC - Ventricular Extrasystole: 0%
Irregular / Artifact beat: 0.4%
Normal: 99.6%



Interpretations:

Physician`s Notes:

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Printed: Sep 25 2017 09:07

VitalScan

ECG ANALYSIS - ECG

Demo Patient **Gender:**Male **Age:**51 (DOB: Jan 1 1966 12:00) **BMI:**27

Exam Date: Sep 11 2017 14:45

HPF 3.4Hz 25 mm/s - 10 mm/mV

Physician`s Notes:

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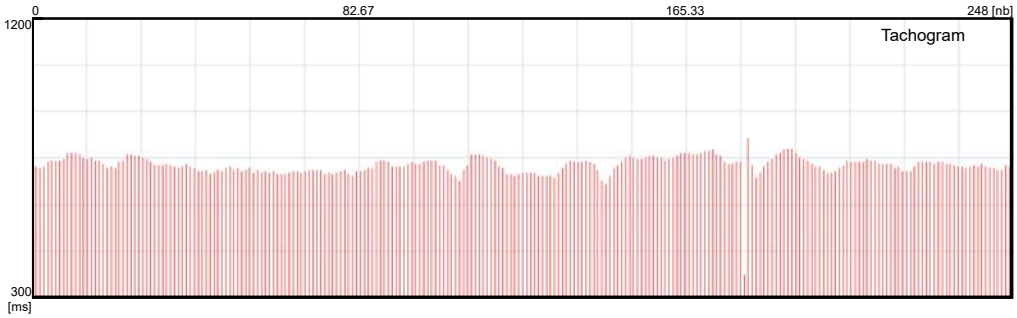
Printed: Sep 25 2017 09:07

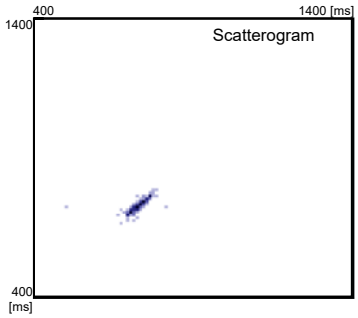
VitalScan

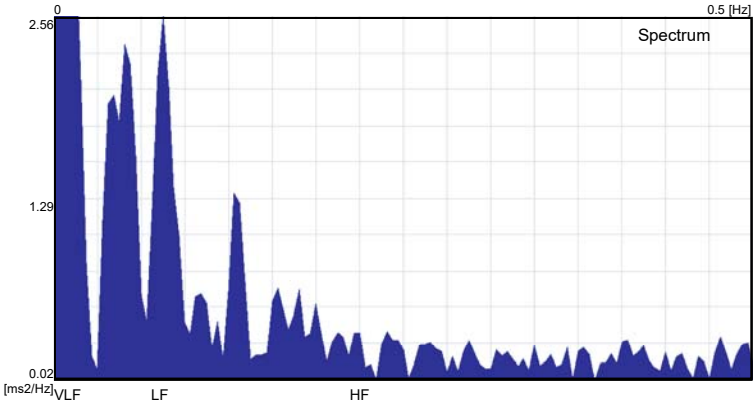
CUMULATIVE STRESS ASSESSMENT

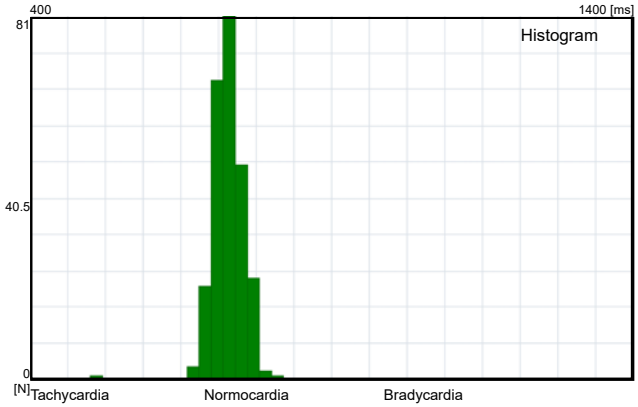
Demo Patient
Gender: Male
Age: 51 (DOB: Jan 1 1966 12:00)
Weight: 183 lbs
BMI: 27
Height: 5 ft 9 in

Physician Only Report
Exam Date: Sep 11 2017 14:45









Total HeartBeats = 247 Artifacts = 2 (0.8%) Signal Quality = Good

HeartRate = 82 (bpm) TDI = 23.6 FDI = 1304.32 SDNN = 28.09

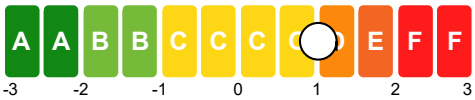
FUNCTIONAL AGE (in years) = 56

HEALTH RISK Factor Based on Stress Assessment = 45.13 %

Physical Stress Coefficient = 3.11 (Normal value: 2.1 Range from 0 to 4 Unfavorable values: higher than 2.6)

PHYSICAL STRESS INDEX = 1.01

(Normal value: 0 Range from -3 to 3 Unfavorable values: higher than 1)

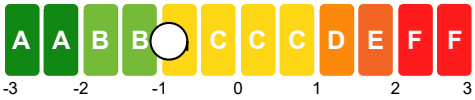


The score is clearly above average. It indicates high physical stress. Stress in the recent past has had a major impact on your physical balance. The negative effects of physical stress are clearly visible. It is possible that you experience physical inconveniences as myalgia, back complaints, palpitations and reduced resistance to illness.

Mental Stress Coefficient = 0.82 (Normal value: 1.7 Range from 0 to 4 Unfavorable values: higher than 2.2)

MENTAL STRESS INDEX = -0.88

(Normal value: 0 Range from -3 to 3 Unfavorable values: higher than 1)



The score is below average. It indicates low mental stress. Stress in the recent past has had little effect on your mental-health. The negative effects of mental stress are limited.

Physician`s Notes:

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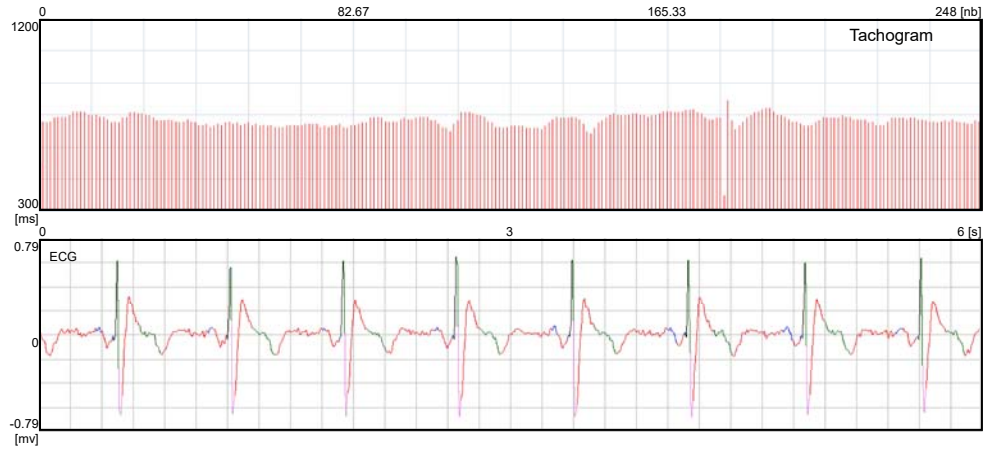
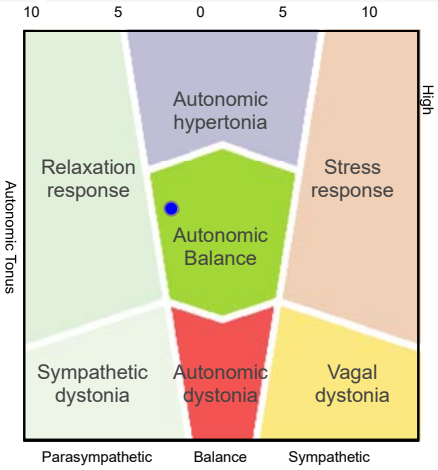
VitalScan

AUTONOMIC REGULATION ASSESSMENT

Demo Patient
Gender: Male
Age: 51 (DOB: Jan 1 1966 12:00)
Weight: 183 lbs
BMI: 27
Height: 5 ft 9 in

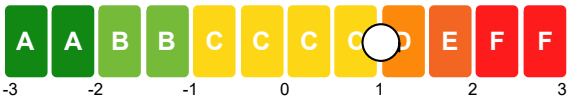
Physician Only Report
Exam Date: Sep 11 2017 14:45





Autonomic Physical Dysregulation (PSI) = 1.01

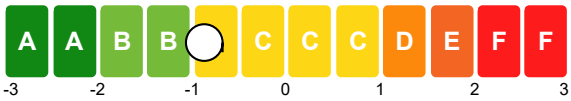
PSI is an indicator of accumulative chronic physical stress. Physical stress can be caused by long-term exposure to negative factors in one`s life or physical illness. The way in which a person copes with physical stressors is a significant contributing factor to this process. When the stress becomes too great, the body will show signs of distress.



The score is clearly above average. It indicates high physical stress. Stress in the recent past has had a major impact on your physical balance. The negative effects of physical stress are clearly visible. It is possible that you experience physical inconveniences as myalgia, back complaints, palpitations and reduced resistance to illness.

Accumulative Mental Stress (MSI) = -0.88

MSI is an indicator of accumulative mental stress. Mental stress can be caused by situations one has to cope with daily and the emotional states that result. The way in which a person copes with stressful events is a significant contributing factor to this process. When the stress becomes too great, the body will show signs of distress.



The score is below average. It indicates low mental stress. Stress in the recent past has had little effect on your mental-health. The negative effects of mental stress are limited.

Abnormal Heart Beats = 2 (0.8%) Signal Quality = Good

HeartRate = 82 (bpm) SDNN = 28.09

QRS = 53 QTc = 354

Ventricular Extrasystole (PVC) = 0

Atrial Extrasystole (PAC) = 0

FUNCTIONAL AGE (in years) = 56

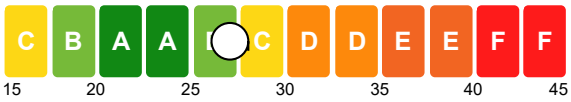
AUTONOMIC TONUS = 67.66 L

AUTONOMIC BALANCE (LFa/HFa) = 0.67 L

LF/HF = 1.04 N

Borderline normal level of sympathetic and parasympathetic tone;

Body Mass Index (BMI) = 27



Risk of Associated Disease According to BMI and Waist Size

18.5 or less: Underweight - N/A
19 - 25: Normal - very low risk of associated diseases
26 - 29: Overweight - prone to health risks
30 - 40: Overweight to Obese - high risk of associated diseases
40 or greater: Extremely Obese - very high risk of associated diseases

A = Excellent
B = Good
C = Fair
D = Poor
E = Very Poor
F = Needs Immediate Attention

Physician`s Notes:

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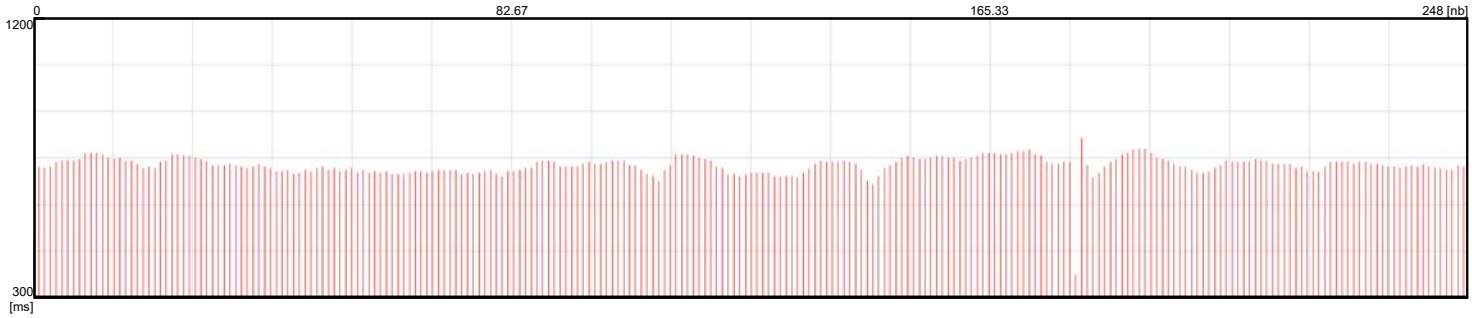
VitalScan

HEARTH RATE VARIABILITY ANALYSIS

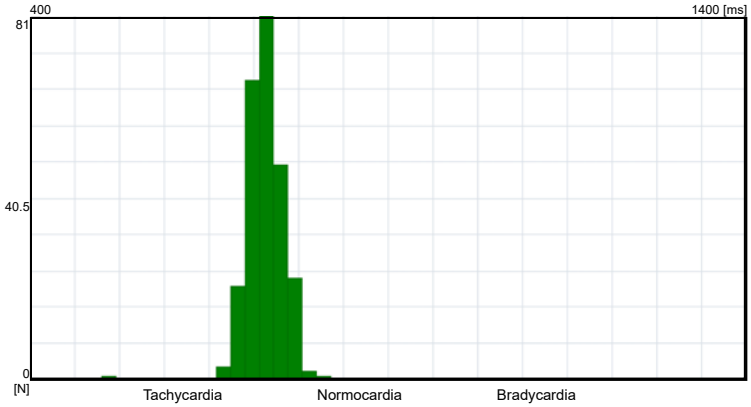
Demo Patient
Gender: Male
Age: 51 (DOB: Jan 1 1966 12:00)
Weight: 183 lbs
BMI: 27
Height: 5 ft 9 in

Physician Only Report
Exam Date: Sep 11 2017 14:45

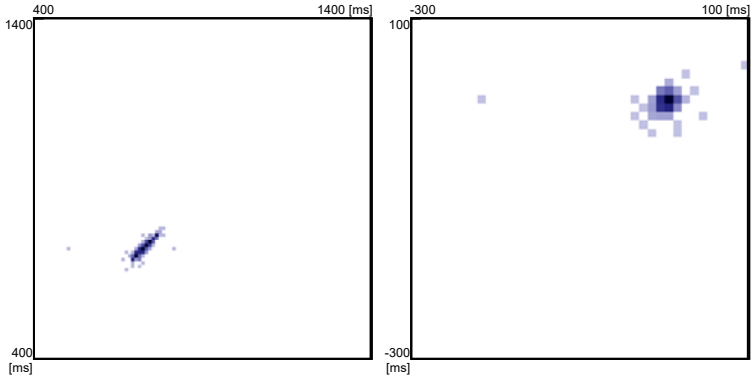


Total HeartBeats = 247 Artifacts = 2 (0.8%) Signal Quality = Good

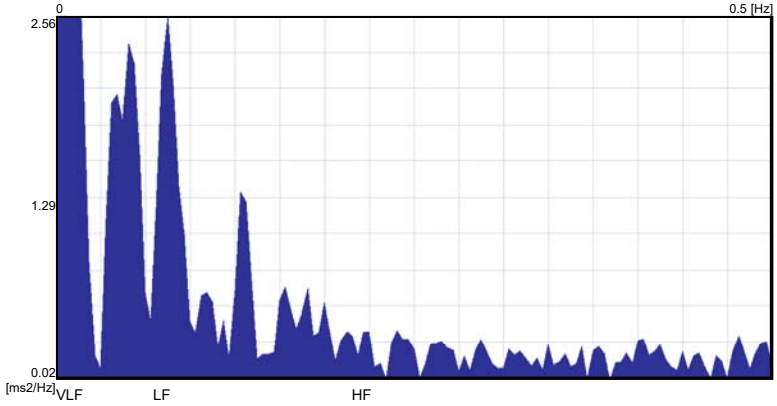
Parameters	Value	Units
HeartRate	82	bpm
AMo	80	number
Mo	720	bpm
SDNN	28.09	ms
SDNN5	22.55	ms
pNN50	2	%
rmsSD	15.64	ms
SDSD	15.62	ms



Parameters	Value	Units
SD1	11.04	bpm
SD2	38.16	number
SD1/SD2	0.29	



Parameters	Peak (Hz)	Power (ms2)	Power (%)	Power (n.u.)
VLF	0.01	110.24	8.45	
LF	0.08	169.12	12.97	14.16
HF	0.22	162.06	12.43	13.57
TP	0.01	1304.32		
LF/HF		1.044		



Physician`s Notes:

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VitalScan

Arterial Stiffness Assessment - Pulse Wave Velocity

Demo Patient
Gender:Male
Age:51 (DOB: Jan 1 1966 12:00)
Weight:183 lbs
BMI:27
Height:5 ft 9 in

Physician Only Report
Exam Date:Sep 11 2017 14:45

Ejection Elasticity Index (EEI) = 0.65

EEI is an indicator for left ventricle ejection power and elasticity of large arteries.

Borderline Normal Blood Circulation

Dicrotic Dilation Index (DDI) = 0.64

DDI indicates the contractility, tension and stiffness in the small arteries.

Borderline Normal Blood Circulation

Dicrotic Elasticity Index (DEI) = 0.52

DEI represents the reflection of arterial elasticity and blood flow in the venous system.

Normal Blood Circulation

Augmentation Index (AI) = -0.28

Augmentation Index (AI) is a useful marker for cardiac risk. AI increases with age and a sedentary lifestyle.

AI is a measure of arterial stiffness and it provides general information about the arteries. AI is positively correlated with pulsewave velocity, blood pressure and hypertension.

A = Excellent
B = Borderline Normal
C = Mild - Moderate
D = Borderline Abnormal
E = Abnormal - Severe
F = Severe

Reflection Index (RI) = 0.45

RI is an indicator of the vascular tone of the small arteries. Both vasodilation and vasoconstriction play important roles in determining vascular tone.

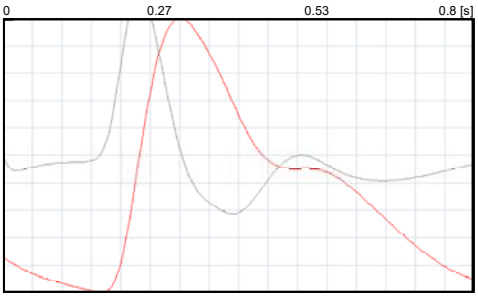
Stiffness Index (SI) = 8.5 m/s

SI is a measure of large artery stiffness determined by time. SI calculation gives a value similar to aortic pulse wave velocity.

APG Pattern

An indication of the biological, (rather than chronological) age of arteries

APG Type = C



Heart Rate = 82 (bpm) SpO2 = 96.5 (%)

C1 - Capacitive Arterial Compliance = 12.8 ml/mmHg

C2 - Oscillatory or Reflective Arterial Compliance = 4.73 ml/mmHg

Diastolic/Systolic Pressure Time Index(DPTI/SPTI) = 0.26

Systemic Vascular Resistance (SVR): 1307 (700-1800)

Blood Volume (BV): 5.25 l (3-5)

Cardiac Output (Q): 5.29 l/min (4.0-8.0)

Pulse Pressure (PP): 32.28 mmHg (25-100)

Physician`s Notes:

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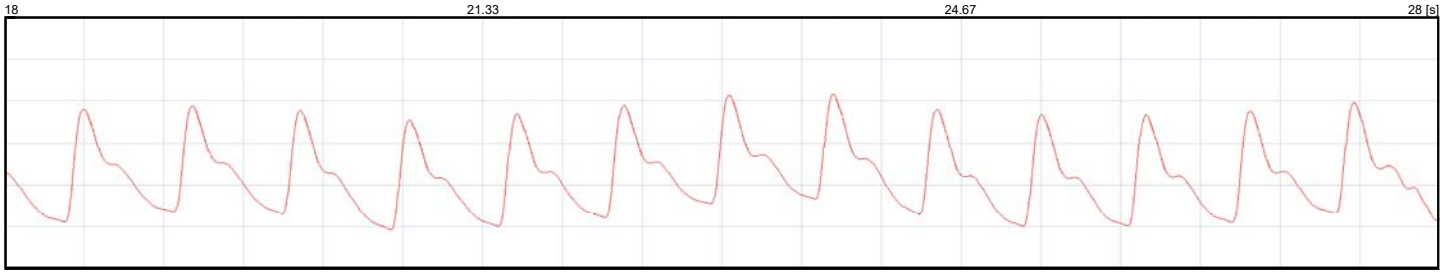
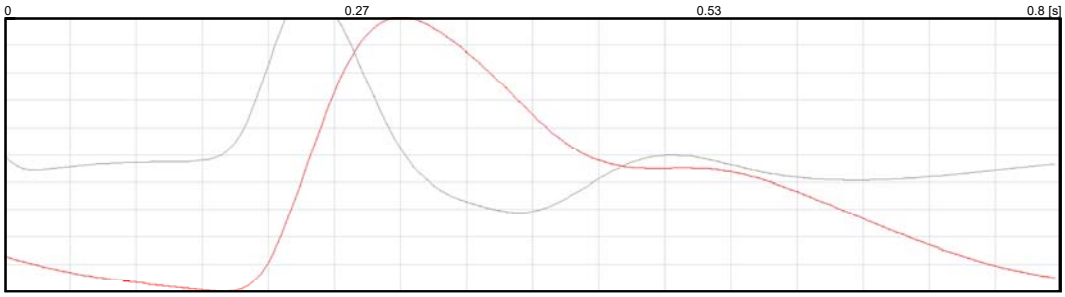
VitalScan

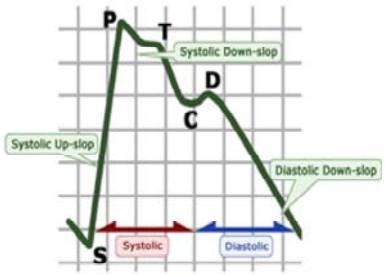
Arterial Stiffness Assessment - Pulse Wave Velocity

Demo Patient
Gender: Male
Age: 51 (DOB: Jan 1 1966 12:00)
Weight: 183 lbs
BMI: 27
Height: 5 ft 9 in

Physician Only Report
Exam Date: Sep 11 2017 14:45







HeartRate = 82 (bpm)

Pulse Height (PH) = 47

a-b: 135 ms

a-c: 160 ms

a-d: 195 ms

a-e: 275 ms

b/a: -0.34

c/a: -0.29

d/a: -0.24

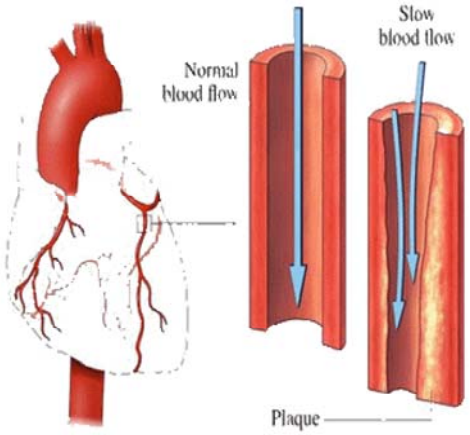
e/a: 0

Thank you for taking the Pulse Wave Velocity (PWV) Analysis. This report gives you a quick and objective answer to how your vascular system is currently doing. The aim of these results are not to state a medical diagnosis, but to support a diagnosis by a medical professional. The result should therefore be interpreted accordingly.

PWV is an excellent analysis to evaluate vascular endothelial dysfunction. This represent the elasticity of the artery. Arteries that are atherosc lerotic, arteriosclerotic, or hardened (having reduced elasticity and increased narrowing) place an extra strain on the heart, valves, and arteries which can lead to stroke, heart attack, kidney failure and/or sudden death.

The pulse wave is a physiological phenomenon, observable and measurable in the arterial system during blood circulation. During one heart systole a certain blood volume is expelled. This propagates through the arteries due to the reciprocal transformation between kinetic energy of a segment of the expelled blood volume and the potential energy of a stretched segment of the resilient vascular wall. We can observe the changes in pressure, blood flow, velocity and profile throughout the whole pulse wave. It can be used for classification of the artery elasticity.

How is Pulse Wave Velocity measured by a finger probe?
The heart contracts and creates a direct wave which travels down the arm (red curve).
The direct wave is reflected in the lower body, and travels back towards the arm (pink curve).
The direct wave and the reflected wave combine to form the finger probe (blue curve).



Stroke Volume (SV): 64.57 ml (55-100)

Stroke Volume Index (SVI): 32.12 ml/m2

Cardiac Output (Q): 5.29 l/min (4.0-8.0)

Cardiac Index (CI): 2.63 l/min/m2 (2.6-4.2)

Systemic Vascular Resistance (SVR): 1307 (700-1800)

Mean Arterial Pressure (MAP): 87.53 mmHg (70-110)

Pulse Pressure (PP): 32.28 mmHg (25-100)

Estimated PPG Ejection Fraction (EF): 74.55 % (55-70)

Blood Volume (BV): 5.25 l (3-5)

Estimated PPG Cardiac Ejection Time (Etc): 320 ms (260-380)

Physician`s Notes:

All results and analysis should be considered in the context of persons/candidate's case history, symptoms, diagnosis, current medications, treatment plans and therapies.
Final diagnosis is the sole responsibility of the licensed medical practitioner after persons examination, lab tests and/or other clinical findings as necessary.

VitalScan

Arterial Stiffness Assessment - Pulse Wave Velocity

Demo Patient
Gender: Male
Age: 51 (DOB: Jan 1 1966 12:00)
Weight: 183 lbs
BMI: 27
Height: 5 ft 9 in

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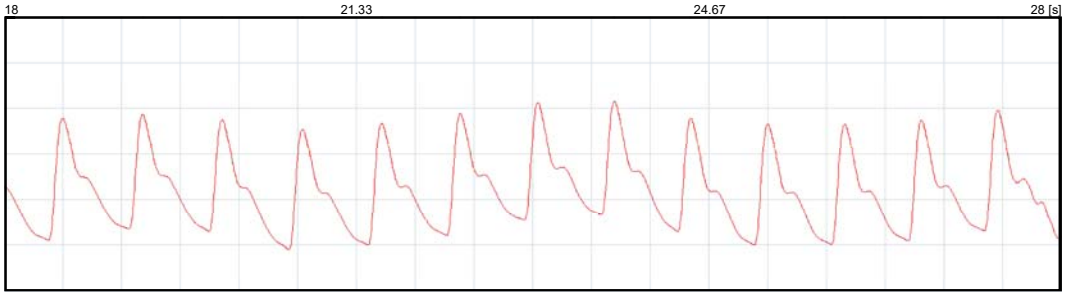
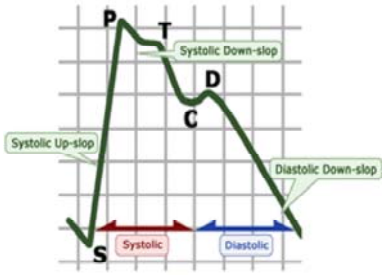




Ejection Elasticity Index (EEI) = 0.65

EEI is an indicator for left ventricle ejection power and elasticity of large arteries.

Borderline Normal Blood Circulation

Dicrotic Dilation Index (DDI) = 0.636

DDI indicates the contractility, tension and stiffness in the small arteries.

Borderline Normal Blood Circulation

Dicrotic Elasticity Index (DEI) = 0.518

DEI represents the reflection of arterial elasticity and blood flow in the venous system.

Normal Blood Circulation

Augmentation Index (AI) = -0.28

Augmentation Index (AI) is a useful marker for cardiac risk. AI increases with age and a sedentary lifestyle.

AI is a measure of arterial stiffness and it provides general information about the arteries. AI is positively correlated with pulsewave velocity, blood pressure and hypertension.

Reflection Index (RI) = 0.45

RI is an indicator of the vascular tone of the small arteries. Both vasodilation and vasoconstriction play important roles in determining vascular tone.

Stiffness Index (SI) = 8.55 m/s

SI is a measure of large artery stiffness determined by time. SI calculation gives a value similar to aortic pulse wave velocity.

APG Pattern

An indication of the biological, (rather than chronological) age of arteries

APG Type = C

Heart Rate = 82 (bpm)

C1 - Capacitive Arterial Compliance = 12.8 ml/mmHg

C2 - Oscillatory or Reflective Arterial Compliance = 4.73 ml/mmHg

Diastolic/Systolic Pressure Time Index (DPTI/SPTI) = 0.26

Physician`s Notes:

All results and analysis should be considered in the context of persons/candidate's case history, symptoms, diagnosis, current medications, treatment plans and therapies.
Final diagnosis is the sole responsibility of the licensed medical practitioner after persons examination, lab tests and/or other clinical findings as necessary.

VitalScan

Arterial Vascular Assessment - Segmental Analysis

Demo Patient
Gender:Male
Age:51 (DOB: Jan 1 1966 12:00)
Weight:183 lbs
BMI:27
Height:5 ft 9 in

Physician Only Report
Exam Date:Sep 11 2017 14:45

Resting - Right - Finger

EEI = 0.644
DDI = 0.63
DEI = 0.497

AI = -0.27	DPTI/SPTI = 0.28
RI = 0.45	Systolic = 128 mmHg
SI = 8.55	Diastolic = 71 mmHg
PTT = 155.41 ms	SpO2 = 96.44 %
PWV = 5.18 m/s	

Standing - Finger

EEI = 0.955
DDI = 0.874
DEI = 0.932

AI = -0.71	DPTI/SPTI = 0.18
RI = 0.32	Systolic = 128 mmHg
SI = 7.79	Diastolic = 92 mmHg
PTT = 141.96 ms	SpO2 = 94.02 %
PWV = 5.88 m/s	

Compare - Finger

xEEI = 0.31
xDDI = 0.244
xDEI = 0.435

xAI = -0.43	xDPTI/xSPTI= -0.1
xRI = -0.14	xSystolic = 0 mmHg
xSI = -0.76	xDiastolic = 21 mmHg
xPTT = -13.45 ms	xSpO2 = -2.41 %
xPWV = 0.7 m/s	

Resting - Right - Toe

EEI = 0.55
DDI = 0.63
DEI = 0.362

AI = -0.14	DPTI/SPTI = 0.25
RI = 0.41	Systolic = 160 mmHg
SI = 6.87	Diastolic = 74 mmHg
PTT = 214.64 ms	SpO2 = 96.22 %
PWV = 6.35 m/s	

Standing - Toe

EEI = 0.704
DDI = 0.908
DEI = 0.699

AI = -0.36	DPTI/SPTI = 0.1
RI = 0.19	Systolic = 142 mmHg
SI = 7.97	Diastolic = 110 mmHg
PTT = 210 ms	SpO2 = 91.8 %
PWV = 3.62 m/s	

Compare - Toe

xEEI = 0.153
xDDI = 0.278
xDEI = 0.337

xAI = -0.21	xDPTI/xSPTI= -0.14
xRI = -0.21	xSystolic = -18 mmHg
xSI = 1.09	xDiastolic = 36 mmHg
xPTT = -4.64 ms	xSpO2 = -4.42 %
xPWV = -2.73 m/s	

Resting - Right - Compare

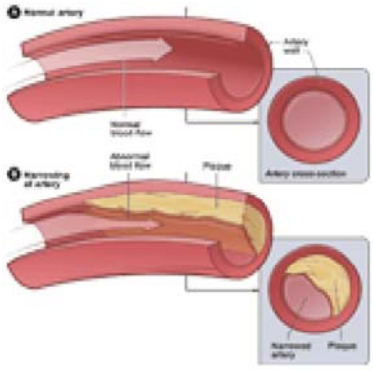
xEEI = -0.094	ABI = 1.04
xDDI = 0	TBI = 1.15
xDEI = -0.135	

xAI = 0.13	xDPTI/xSPTI = -0.03
xRI = -0.05	xSystolic = 31 mmHg
xSI = -1.68	xDiastolic = 3 mmHg
ftPTT = 60.88 ms	xSpO2 = -0.21 %
ftPWV = 9.73 m/s	

Standing - Compare

xEEI = -0.251	ABI = 0.83
xDDI = 0.034	TBI = 0.96
xDEI = -0.233	

xAI = 0.35	xDPTI/xSPTI = -0.08
xRI = -0.12	xSystolic = 5 mmHg
xSI = 0.18	xDiastolic = 11 mmHg
ftPTT = 71 ms	xSpO2 = -2.22 %
ftPWV = 7.05 m/s	



Physician`s Notes:

All results and analysis should be considered in the context of persons/candidate's case history, symptoms, diagnosis, current medications, treatment plans and therapies.
Final diagnosis is the sole responsibility of the licensed medical practitioner after persons examination, lab tests and/or other clinical findings as necessary.

VitalScan

Arterial Vascular Assessment - Resting - Right

Demo Patient
Gender:Male
Age:51 (DOB: Jan 1 1966 12:00)
Weight:183 lbs
BMI:27
Height:5 ft 9 in

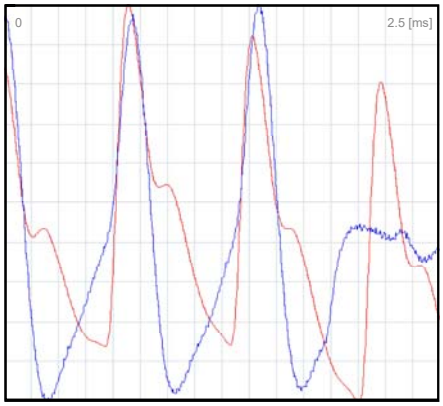
Physician Only Report
Exam Date:Sep 11 2017 14:45

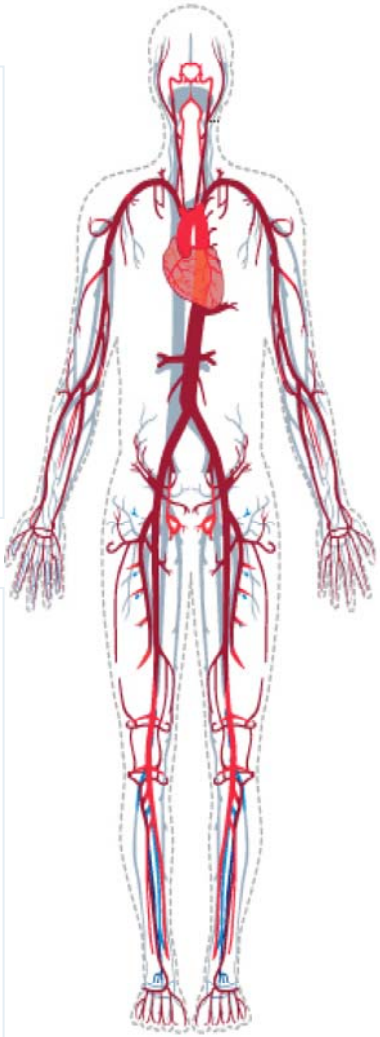
RESTING - RIGHT - FINGER

Ejection Elasticity Index (EEI) = 0.644
Dicrotic Dilation Index (DDI) = 0.63
Dicrotic Elasticity Index (DEI) = 0.497

AI = -0.27
RI = 0.45
SI = 8.55
PTT = 155.41 ms
PWV = 5.18 m/s

DPTI/SPTI = 0.28
Systolic = 128 mmHg
Diastolic = 71 mmHg
SpO2 = 96.44 %



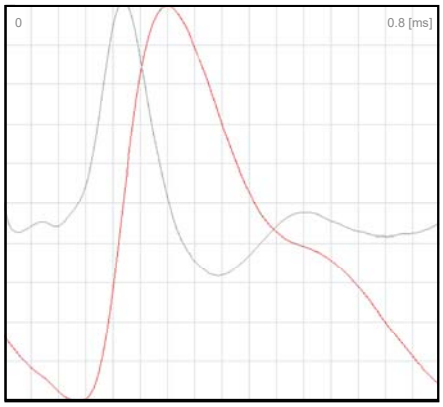


RESTING - RIGHT - TOE

Ejection Elasticity Index (EEI) = 0.55
Dicrotic Dilation Index (DDI) = 0.63
Dicrotic Elasticity Index (DEI) = 0.362

AI = -0.14
RI = 0.41
SI = 6.87
PTT = 214.64 ms
PWV = 6.35 m/s

DPTI/SPTI = 0.25
Systolic = 159.56 mmHg
Diastolic = 73.95 mmHg
SpO2 = 96.22 %



RESTING - RIGHT - COMPARE

x Ejection Elasticity Index (xEEI) = -0.094
x Dicrotic Dilation Index (xDDI) = 0
x Dicrotic Elasticity Index (xDEI) = -0.135

xAI = 0.13
xRI = -0.05
xSI = -1.68
ftPTT = 60.88 ms
ftPWV = 9.73 m/s

xDPTI/xSPTI = -0.03
x Systolic = 30.83 mmHg
x Diastolic = 2.62 mmHg
xSpO2 = -0.21 %

Ankle/Brachial Index (ABI) = 1.04
Toe/Brachial Index (TBI) = 1.15
Normal range

ABI < 0.4: Severe arterial disease, severe obstruction
0.4 - 0.7: Moderate arterial disease, moderate obstruction
0.7 - 0.9: Some arterial disease, mild obstruction
0.9 - 1.0: Acceptable, Borderline
1.0 - 1.4: Normal range
ABI > 1.4: Abnormal Vessel hardening from PVD

TBI < 0.66: Abnormal range
0.66 - 0.75: Acceptable, Borderline
TBI > 0.75: Normal range

Physician`s Notes:

All results and analysis should be considered in the context of persons/candidate's case history, symptoms, diagnosis, current medications, treatment plans and therapies.
Final diagnosis is the sole responsibility of the licensed medical practitioner after persons examination, lab tests and/or other clinical findings as necessary.

VitalScan

ARTERIAL VASCULAR ASSESSMENT - STANDING

Demo Patient
Gender: Male
Age: 51 (DOB: Jan 1 1966 12:00)
Weight: 183 lbs
BMI: 27
Height: 5 ft 9 in

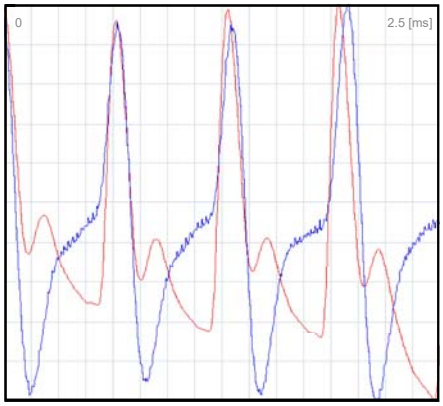
Physician Only Report
Exam Date: Sep 11 2017 14:45

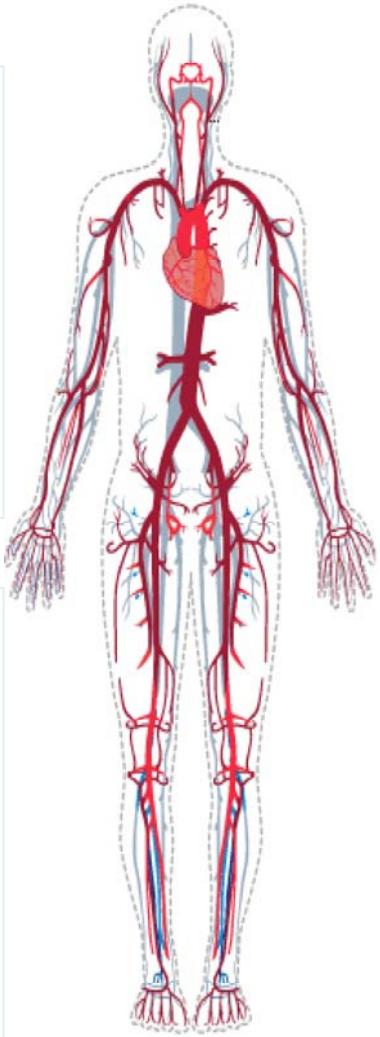
STANDING - FINGER

Ejection Elasticity Index (EEI) = 0.955
Dicrotic Dilation Index (DDI) = 0.874
Dicrotic Elasticity Index (DEI) = 0.932

AI = -0.71
RI = 0.32
SI = 7.79
PTT = 141.96 ms
PWV = 5.88 m/s

DPTI/SPTI = 0.18
Systolic = 128.12 mmHg
Diastolic = 91.79 mmHg
SpO2 = 94.02 %



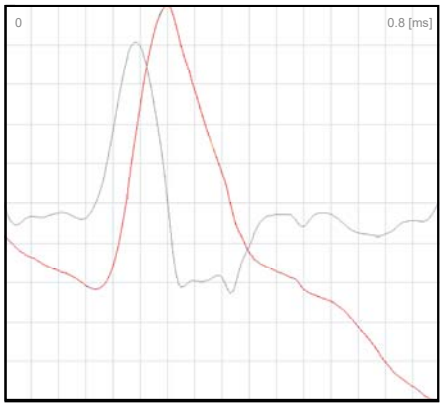


STANDING - TOE

Ejection Elasticity Index (EEI) = 0.704
Dicrotic Dilation Index (DDI) = 0.908
Dicrotic Elasticity Index (DEI) = 0.699

AI = -0.36
RI = 0.19
SI = 7.97
PTT = 210 ms
PWV = 3.62 m/s

DPTI/SPTI = 0.1
Systolic = 141.54 mmHg
Diastolic = 109.81 mmHg
SpO2 = 91.8 %



STANDING - COMPARE

x Ejection Elasticity Index (xEEI) = -0.251
x Dicrotic Dilation Index (xDDI) = 0.034
x Dicrotic Elasticity Index (xDEI) = -0.233

xAI = 0.35
xRI = -0.12
xSI = 0.18
ftPTT = 71 ms
ftPWV = 7.05 m/s

xDPTI/xSPTI = -0.08
x Systolic = 4.71 mmHg
x Diastolic = 10.57 mmHg
xSpO2 = -2.22 %

Ankle/Brachial Index (ABI) = 0.83
Toe/Brachial Index (TBI) = 0.96
Possible: Some arterial disease, mild obstruction

ABI < 0.4: Severe arterial disease, severe obstruction
0.4 - 0.7: Moderate arterial disease, moderate obstruction
0.7 - 0.9: Some arterial disease, mild obstruction
0.9 - 1.0: Acceptable, Borderline
1.0 - 1.4: Normal range
ABI > 1.4: Abnormal Vessel hardening from PVD

TBI < 0.66: Abnormal range
0.66 - 0.75: Acceptable, Borderline
TBI > 0.75: Normal range

Physician`s Notes:

All results and analysis should be considered in the context of persons/candidate's case history, symptoms, diagnosis, current medications, treatment plans and therapies.
Final diagnosis is the sole responsibility of the licensed medical practitioner after persons examination, lab tests and/or other clinical findings as necessary.

VitalScan

Arterial Vascular Assessment - Deep Breathing

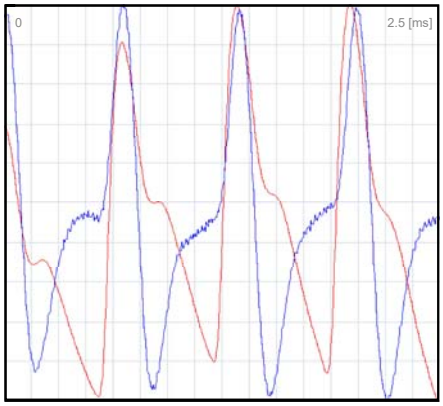
Demo Patient
Gender: Male
Age: 51 (DOB: Jan 1 1966 12:00)
Weight: 183 lbs
BMI: 27
Height: 5 ft 9 in

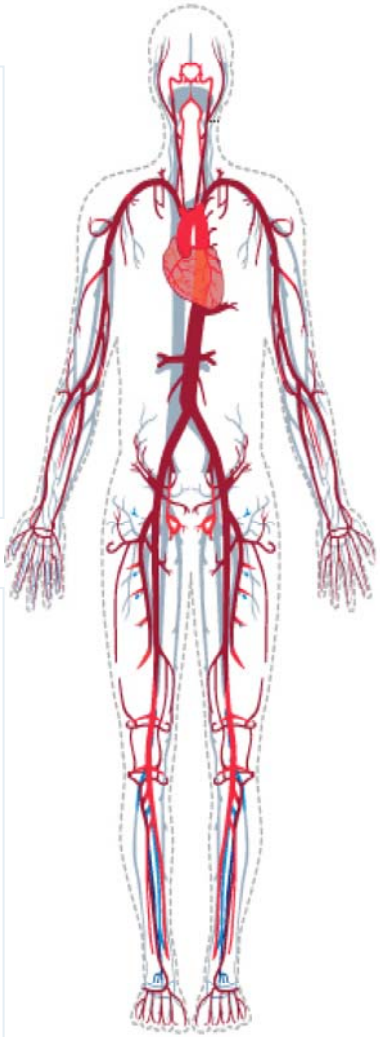
Physician Only Report
Exam Date: Sep 11 2017 14:45

DEEP BREATHING - FINGER

Ejection Elasticity Index (EEI) = 0.605
Dicrotic Dilation Index (DDI) = 0.635
Dicrotic Elasticity Index (DEI) = 0.462

AI = -0.22	DPTI/SPTI = 0.26
RI = 0.44	Systolic = 129 mmHg
SI = 8.35	Diastolic = 72 mmHg
PTT = 151.93 ms	SpO2 = 97.16 %
PWV = 5.28 m/s	

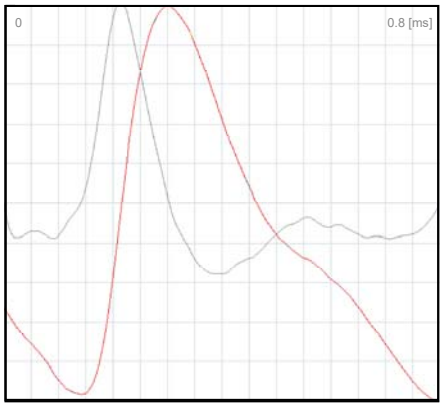




DEEP BREATHING - TOE

Ejection Elasticity Index (EEI) = 0.491
Dicrotic Dilation Index (DDI) = 0.576
Dicrotic Elasticity Index (DEI) = 0.202

AI = -0.06	DPTI/SPTI = 0.25
RI = 0.41	Systolic = 155.49 mmHg
SI = 7.3	Diastolic = 76.26 mmHg
PTT = 220.16 ms	SpO2 = 89.52 %
PWV = 6.17 m/s	



DEEP BREATHING - COMPARE

x Ejection Elasticity Index (xEEI) = -0.115
x Dicrotic Dilation Index (xDDI) = -0.059
x Dicrotic Elasticity Index (xDEI) = -0.26

xAI = 0.16	xDPTI/xSPTI = -0.01
xRI = -0.02	x Systolic = 25.41 mmHg
xSI = -1.04	x Diastolic = 4.19 mmHg
ftPTT = 65.94 ms	xSpO2 = -7.64 %
ftPWV = 8.63 m/s	

Ankle/Brachial Index (ABI) = 1
Toe/Brachial Index (TBI) = 1.11
Acceptable, Borderline

ABI < 0.4: Severe arterial disease, severe obstruction
0.4 - 0.7: Moderate arterial disease, moderate obstruction
0.7 - 0.9: Some arterial disease, mild obstruction
0.9 - 1.0: Acceptable, Borderline
1.0 - 1.4: Normal range
ABI > 1.4: Abnormal Vessel hardening from PVD

TBI < 0.66: Abnormal range
0.66 - 0.75: Acceptable, Borderline
TBI > 0.75: Normal range

Physician`s Notes:

All results and analysis should be considered in the context of persons/candidate's case history, symptoms, diagnosis, current medications, treatment plans and therapies.
Final diagnosis is the sole responsibility of the licensed medical practitioner after persons examination, lab tests and/or other clinical findings as necessary.

VitalScan

Arterial Vascular Assessment - Coronary Respiratory Response

Demo Patient
Gender: Male
Age: 51 (DOB: Jan 1 1966 12:00)
Weight: 183 lbs
BMI: 27
Height: 5 ft 9 in

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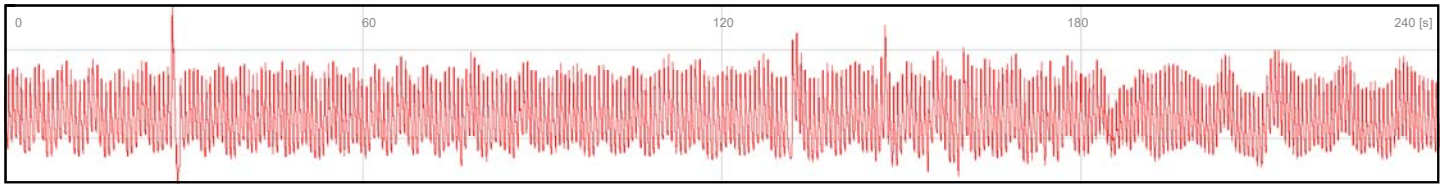
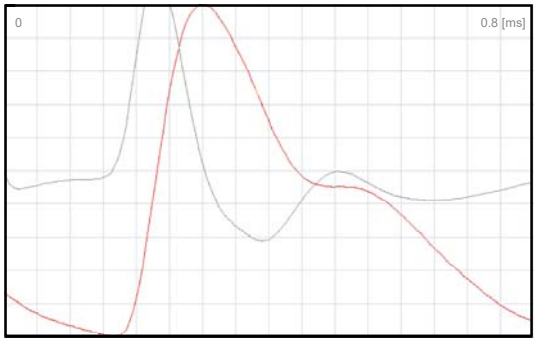


CORONARY RESPIRATORY RESPONSE - BASELINE

Ejection Elasticity Index (EEI) = 0.644
Dicrotic Dilation Index (DDI) = 0.63
Dicrotic Elasticity Index (DEI) = 0.497

AI = -0.27	DPTI/SPTI = 0.28
RI = 0.45	Systolic = 128.73 mmHg
SI = 8.55	Diastolic = 71.34 mmHg
PTT = 155.41 ms	SpO2 = 96.44 %
PWV = 5.18 m/s	



CORONARY RESPIRATORY RESPONSE - REACTION

Ejection Elasticity Index (EEI) = 0.605
Dicrotic Dilation Index (DDI) = 0.635
Dicrotic Elasticity Index (DEI) = 0.462

AI = -0.22	DPTI/SPTI = 0.26
RI = 0.44	Systolic = 130.08 mmHg
SI = 8.35	Diastolic = 72.07 mmHg
PTT = 151.93 ms	SpO2 = 95.88 %
PWV = 5.28 m/s	

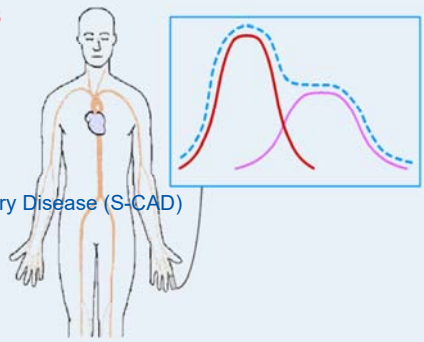
CORONARY RESPIRATORY RESPONSE - COMPARE

x Ejection Elasticity Index (xEEI) = -0.039
x Dicrotic Dilation Index (xDDI) = 0.005
x Dicrotic Elasticity Index (xDEI) = -0.036

xAI = 0.05	xDPTI/xSPTI = -0.02
xRI = -0.02	x Systolic = 1.35 mmHg
xSI = -0.2	x Diastolic = 0.74 mmHg
xPTT = -3.48 ms	xSpO2 = 0.72 %
xPWV = 0.1 m/s	

Coronary Respiratory Response (CRR) = 12.6

CRR < 10: Possible: Significant Coronary Artery Disease (S-CAD)
10 - 14: Acceptable, Borderline
CRR > 14: Normal range



Physician`s Notes:

All results and analysis should be considered in the context of persons/candidate's case history, symptoms, diagnosis, current medications, treatment plans and therapies.
Final diagnosis is the sole responsibility of the licensed medical practitioner after persons examination, lab tests and/or other clinical findings as necessary.

VitalScan

SUDOMOTOR SYMPATHETIC RESPONSE

Demo Patient
Gender:Male
Age:51 (DOB: Jan 1 1966)
Weight:183 lbs
BMI:27
Height:5 ft 9 in

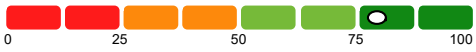
Physician Only Report
Exam Date:Sep 11 2017 14:57

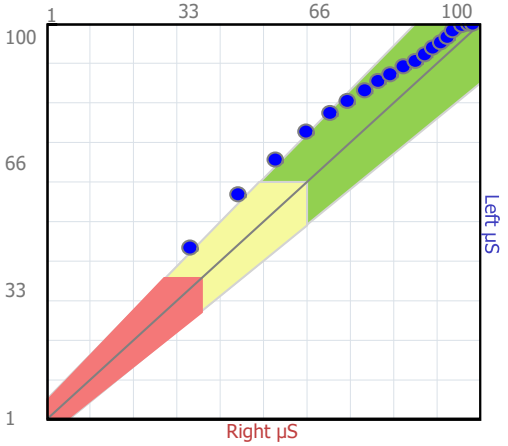
HANDS

Asymmetry = 22%
(Unfavorable values: higher than 20 %)

Bioelectrical Conductivity Response (dBEC) = 71
(dBEC correlate with Sweat Gland Function)

Bioelectrical Conductivity (BEC) = 79 µS
(BEC correlate with Sweat Gland Nerve Density)



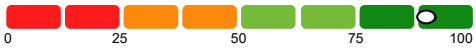


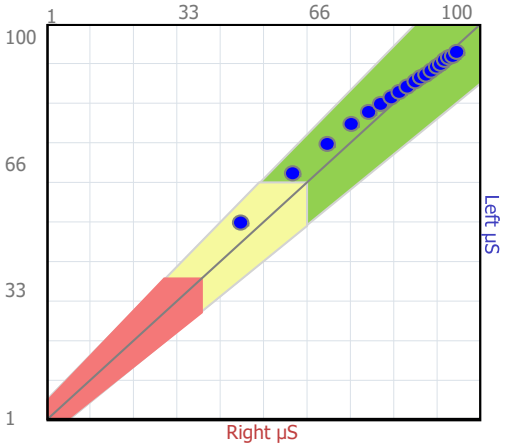
FEET

Asymmetry = 8%
(Unfavorable values: higher than 20 %)

Bioelectrical Conductivity Response (dBEC) = 67
(dBEC correlate with Sweat Gland Function)

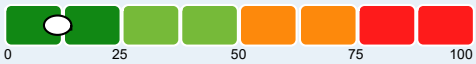
Bioelectrical Conductivity (BEC) = 89.6 µS
(BEC correlate with Sweat Gland Nerve Density)



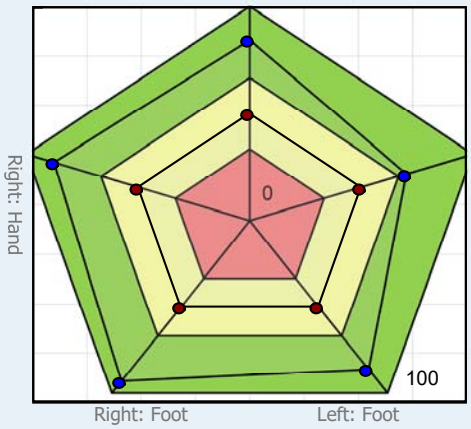


SUDOMOTOR AUTONOMIC NEUROPATHY

Risk for sudomotor autonomic neuropathy = 11.5
(No risk if < 40, Moderate 40-60, Elevated risk if > 60)



No clear sign of Sudomotor dysfunction.



Sudomotor autonomic neuropathy correlate with Sweat Gland Nerve Density and Sweat Gland Function

Physician`s Notes:

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VitalScan

SUDOMOTOR SYMPATHETIC RESPONSE

Demo Patient
Gender: Male
Age: 51 (DOB: Jan 1 1966)
Weight: 183 lbs
BMI: 27
Height: 5 ft 9 in

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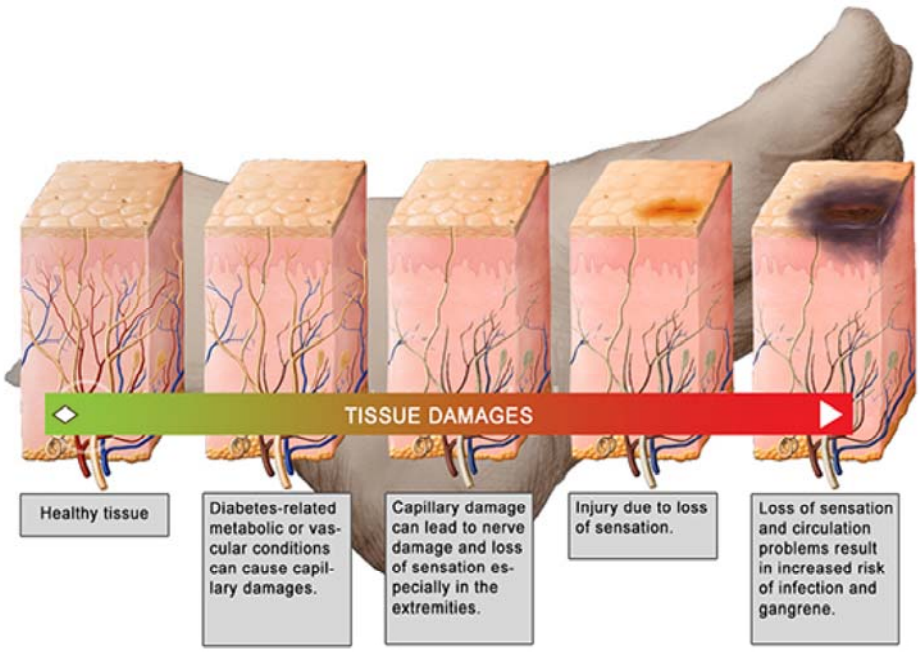
AUTONOMIC RISK FACTOR

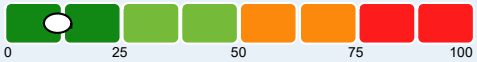


Hands Asymmetry = 22%
Feet Asymmetry = 8%
(Unfavorable values: higher than 20 %)

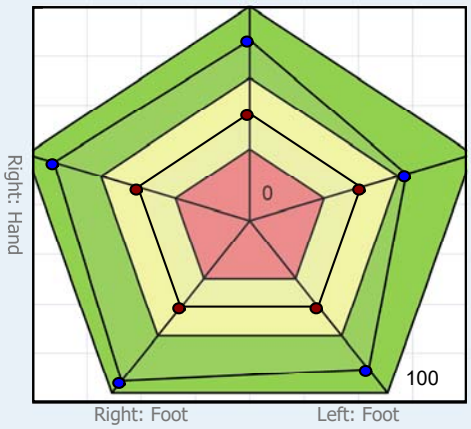
SUDOMOTOR AUTONOMIC NEUROPATHY

Risk for sudomotor autonomic neuropathy = 11.49

(No risk if < 40, Moderate 40-60, Elevated risk if > 60)



No clear sign of Sudomotor dysfunction.



Sudomotor autonomic neuropathy correlate with Sweat Gland Nerve Density and Sweat Gland Function

Physician`s Notes:

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VitalScan

SUDOMOTOR SYMPATHETIC RESPONSE - HANDS

Demo Patient
Gender: Male
Age: 51 (DOB: Jan 1 1966)
Weight: 183 lbs
BMI: 27
Height: 5 ft 9 in

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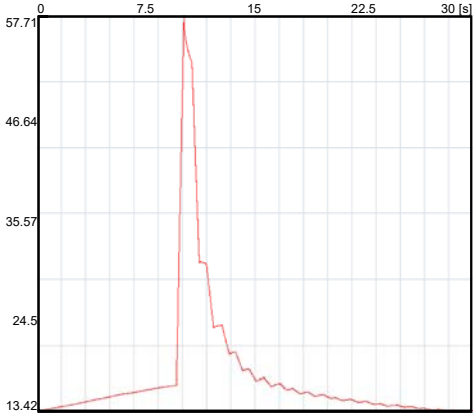
Normal | Borderline Normal | Borderline Abnormal | Abnormal - Severe

HANDS - LEFT

Anode/Cathode = 0

Bioelectrical Conductivity Response (dBEC) = 72

Bioelectrical Conductivity (BEC) = 87.7 µS

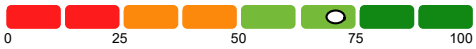


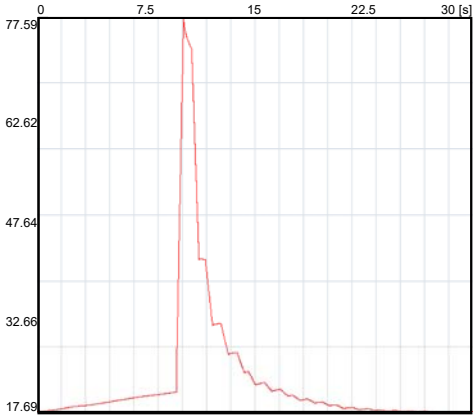
HANDS - RIGHT

Anode/Cathode = 0

Bioelectrical Conductivity Response (dBEC) = 70

Bioelectrical Conductivity (BEC) = 70.2 µS



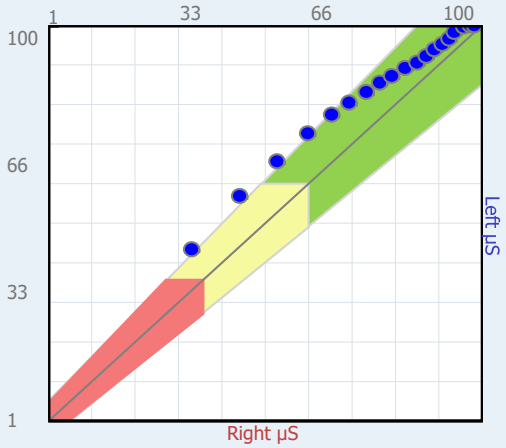


HANDS - AVERAGE

Asymmetry = 22%
(Unfavorable values: higher than 20 %)

Bioelectrical Conductivity Response (dBEC) = 71
(dBEC correlate with Sweat Gland Function)

Bioelectrical Conductivity (BEC) = 79 µS
(BEC correlate with Sweat Gland Nerve Density)



blue line - anode; red line - cathode (reverse polarity)

Physician`s Notes:

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VitalScan

SUDOMOTOR SYMPATHETIC RESPONSE - FEET

Demo Patient
Gender: Male
Age: 51 (DOB: Jan 1 1966)
Weight: 183 lbs
BMI: 27
Height: 5 ft 9 in

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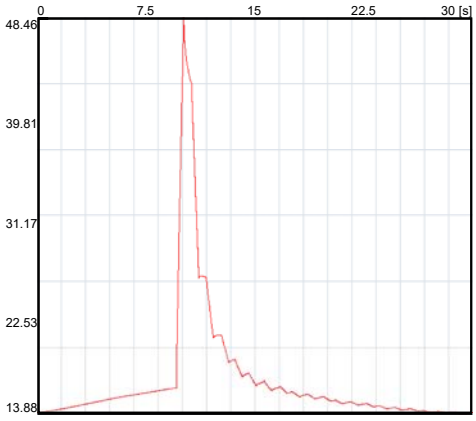
Normal | Borderline Normal | Borderline Abnormal | Abnormal - Severe

FEET - LEFT

Anode/Cathode = 0

Bioelectrical Conductivity Response (dBEC) = 65

Bioelectrical Conductivity (BEC) = 93 µS

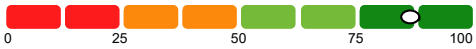


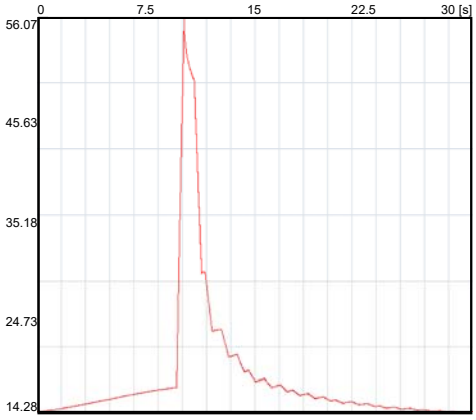
FEET - RIGHT

Anode/Cathode = 0

Bioelectrical Conductivity Response (dBEC) = 68

Bioelectrical Conductivity (BEC) = 86.2 µS



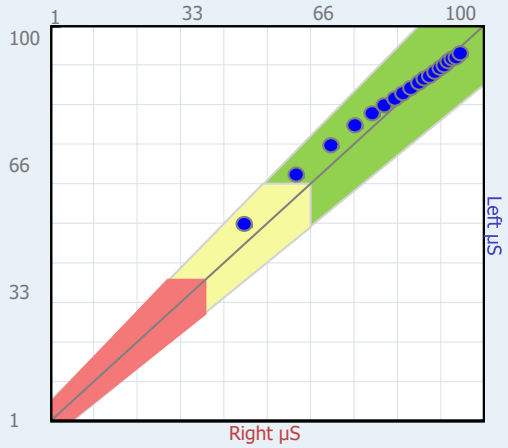


FEET - AVERAGE

Asymmetry = 8%
(Unfavorable values: higher than 20 %)

Bioelectrical Conductivity Response (dBEC) = 67
(dBEC correlate with Sweat Gland Function)

Bioelectrical Conductivity (BEC) = 89.6 µS
(BEC correlate with Sweat Gland Nerve Density)



blue line - anode; red line - cathode (reverse polarity)

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VitalScan

BIOELECTRICAL IMPEDANCE ANALYSIS (BIA)

Demo Patient
Gender:Male
Age:51 (DOB: Jan 1 1966)
Weight:183 lbs
BMI:27
Height:5 ft 9 in

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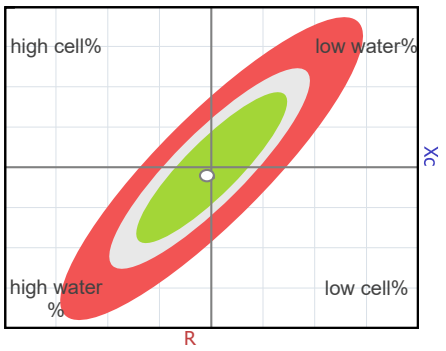
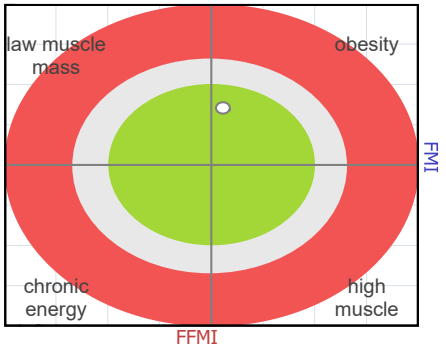
BIOELECTRICAL IMPEDANCE ANALYSIS

Parameter	Value	Norms
Weight	183 Lbs	146 - 173
Fat-Free Mass	79 %	78-90
Body Fat Mass	21 %	10-22
Intracellular Water	34 %	34-40
Extracellular Water	25 %	22-26
Total Body Water	59 %	59-69



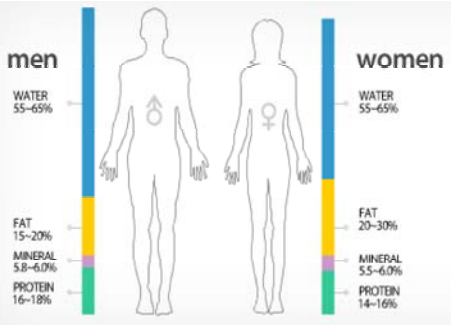
OBESITY ANALYSIS

Parameter	Value	Norms
Body Mass Index	27 kg/m2	20-25
Body Fat-Free Mass Index	21 kg/m2	16.4-24.6
Body Fat Mass Index	6 kg/m2	3.6-5.4
Hydration	73.87	55-70
Phase Angle (50KHz)	7.79	>6.0
Basal Metabolic Rate	1751 kcal	

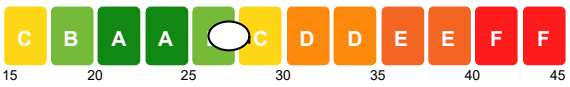


BODY COMPOSITION

	Values	Total Body Water	Fat-Free Mass	Weight
Intracellular Water	62Lbs (34%)	108Lbs (59%)	145Lbs (79%)	183Lbs
Extracellular Water	46Lbs (25%)			
Dry Lean Mass	37Lbs (20%)			
Body Fat Mass	38Lbs (21%)			



Body Mass Index (BMI) = 27



Basal Metabolic Rate (BMR) = 1751 cal

Total Daily Energy Expenditure = 2626 cal

Risk of Associated Disease According to BMI and Waist Size

18.5 or less: Underweight - N/A
19 - 25: Normal - very low risk of associated diseases
26 - 29: Overweight - prone to health risks
30 - 40: Overweight to Obese - high risk of associated diseases
40 or greater: Extremely Obese - very high risk of associated diseases

Physician`s Notes:

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VitalScan

BODY COMPOSITION ANALYSIS

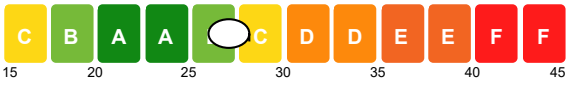
Demo Patient
Gender: Male
Age: 51 (DOB: Jan 1 1966)
Weight: 183 lbs
BMI: 27
Height: 5 ft 9 in

Physician Only Report
Exam Date: Sep 11 2017 14:57

BIOELECTRICAL IMPEDANCE ANALYSIS

Parameter	Value	Norms	Comment
Weight	183 Lbs	146 - 173 Lbs	
Fat-Free Mass	79 %	78-90 %	Fat free mass is comprised of non-fat components of the human body. Muscle, bone and water are all examples of fat free mass.
Body Fat Mass	21 %	10-22 %	Total % of fat present in the body, in comparison with the total amount of body weight.
Body Mass Index	27 kg/m2	20-25 kg/m2	Ratio between your weight and height .BMI= weight (KG) / height^2
Total Body Water	59 %	59-69 %	Total amount of fluid in the body.
Basal Metabolic Rate	1751 kcal		Basal Metabolic Rate is the daily minimum number of calories your body needs when at total rest.
Total Daily Energy Expenditure	2626 kcal		The amount of calories burned by the human body in one day adjusted to the amount of activity.

Body Mass Index (BMI) = 27

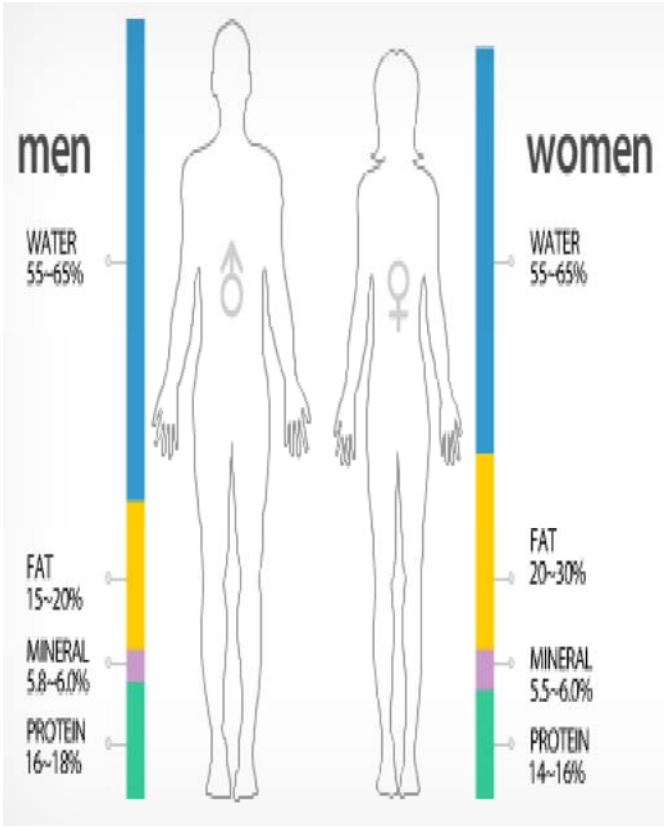


Basal Metabolic Rate (BMR) = 1751 cal

Total Daily Energy Expenditure = 2626 cal

Risk of Associated Disease According to BMI and Waist Size

18.5 or less: Underweight - N/A
19 - 25: Normal - very low risk of associated diseases
26 - 29: Overweight - prone to health risks
30 - 40: Overweight to Obese - high risk of associated diseases
40 or greater: Extremely Obese - very high risk of associated diseases



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Printed: Sep 25 2017 09:07

VitalScan

BODY COMPOSITION - BODY PARTS

Demo Patient
Gender: Male
Age: 51 (DOB: Jan 1 1966)
Weight: 183 lbs
BMI: 27
Height: 5 ft 9 in

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BODY

Weight = 100% (183Lbs)
Fat-Free Mass = 79% (144.7Lbs)
Fat Mass = 21% (38.3Lbs)
Phase Angle (50KHz) = 7.79

Intracellular Water = 33.8% (61.9Lbs)
Extracellular Water = 25% (45.7Lbs)
Body Water = 58.8% (107.6Lbs)

ARMS: LEFT

Weight = 5.8% (10.6Lbs)
Fat-Free Mass = 75.5% (8Lbs)
Fat Mass = 24.5% (2.6Lbs)
Phase Angle (50KHz) = 7.41

Intracellular Water = 32% (3.4Lbs)
Extracellular Water = 22.8% (2.4Lbs)
Body Water = 54.9% (5.8Lbs)

ARMS: RIGHT

Weight = 5.8% (10.6Lbs)
Fat-Free Mass = 55% (5.8Lbs)
Fat Mass = 45% (4.8Lbs)
Phase Angle (50KHz) = 0

Intracellular Water = 20% (2.1Lbs)
Extracellular Water = 50% (5.3Lbs)
Body Water = 38% (4Lbs)

LEGS: LEFT

Weight = 16.5% (30.2Lbs)
Fat-Free Mass = 75.3% (22.7Lbs)
Fat Mass = 24.7% (7.5Lbs)
Phase Angle (50KHz) = 7.2

Intracellular Water = 31.7% (9.6Lbs)
Extracellular Water = 23% (6.9Lbs)
Body Water = 54.7% (16.5Lbs)

LEGS: RIGHT

Weight = 16.5% (30.2Lbs)
Fat-Free Mass = 77.2% (23.3Lbs)
Fat Mass = 22.8% (6.9Lbs)
Phase Angle (50KHz) = 6.83

Intracellular Water = 33% (10Lbs)
Extracellular Water = 23.8% (7.2Lbs)
Body Water = 56.8% (17.1Lbs)

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VitalScan

MULTI-FREQUENCY BIA

Demo Patient
Gender: Male
Age: 51 (DOB: Jan 1 1966)
Weight: 183 lbs
BMI: 27
Height: 5 ft 9 in

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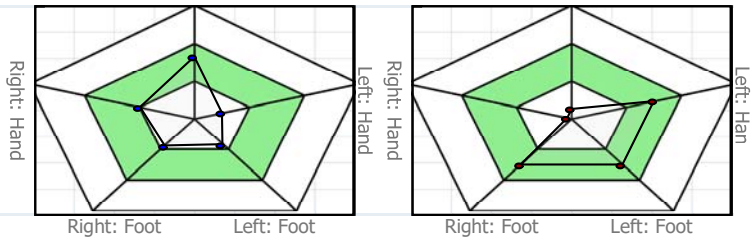
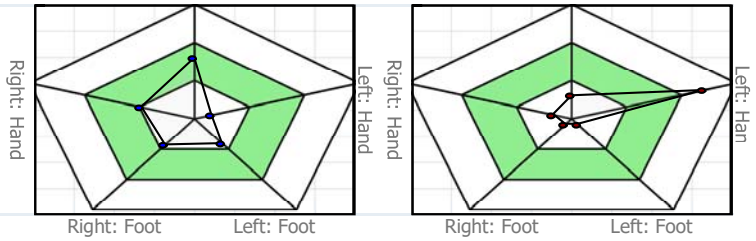
Frequency: 1KHz

Resistance (R) = 437 ohm
Bio Impedance (Z) = 437.1 ohm
Reactance (Xc) = 6.9 ohm
Phase Angle (PA) = 0.9



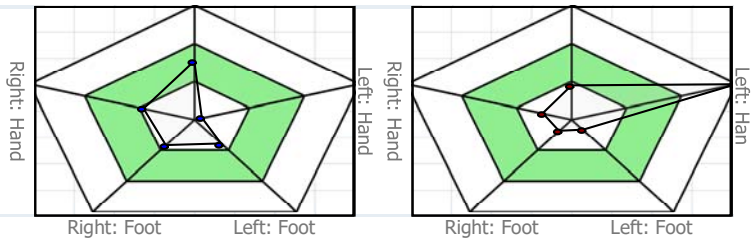
Frequency: 5KHz

Resistance (R) = 426 ohm
Bio Impedance (Z) = 426.3 ohm
Reactance (Xc) = 16 ohm
Phase Angle (PA) = 2.2



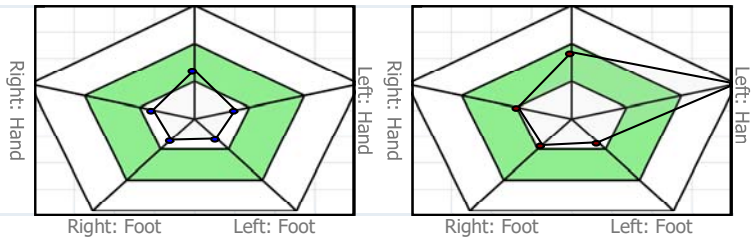
Frequency: 10KHz

Resistance (R) = 411 ohm
Bio Impedance (Z) = 411.7 ohm
Reactance (Xc) = 24 ohm
Phase Angle (PA) = 3.3



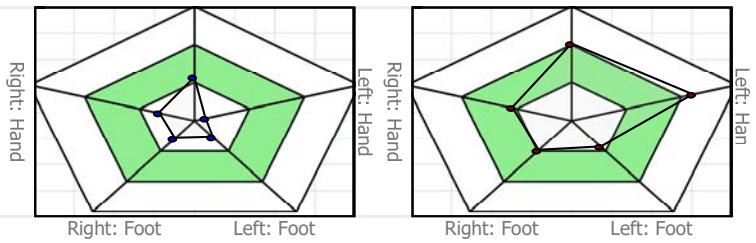
Frequency: 50KHz

Resistance (R) = 343.3 ohm
Bio Impedance (Z) = 346.5 ohm
Reactance (Xc) = 47 ohm
Phase Angle (PA) = 7.8

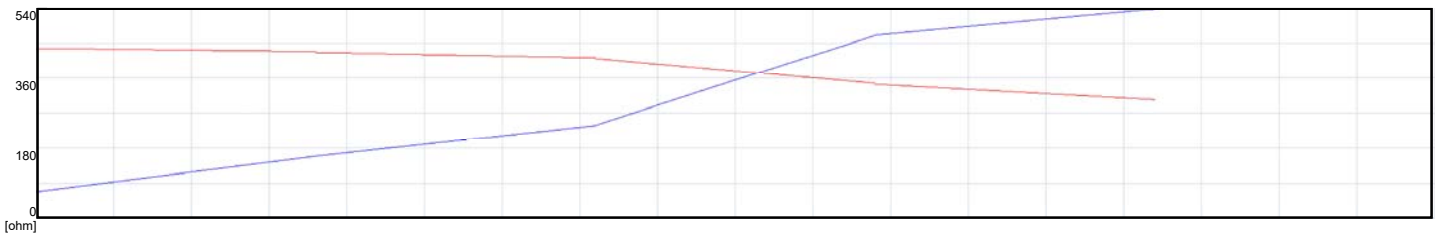


Frequency: 100KHz

Resistance (R) = 301.9 ohm
Bio Impedance (Z) = 306.7 ohm
Reactance (Xc) = 54 ohm
Phase Angle (PA) = 10.1



Resistance (R) & Reactance (Xc*10)



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VitalScan

ELECTRO INTERSTITIAL SCAN - PATHWAYS

Demo Patient
Gender: Male
Age: 51 (DOB: Jan 1 1966)
Weight: 183 lbs
BMI: 27
Height: 5 ft 9 in

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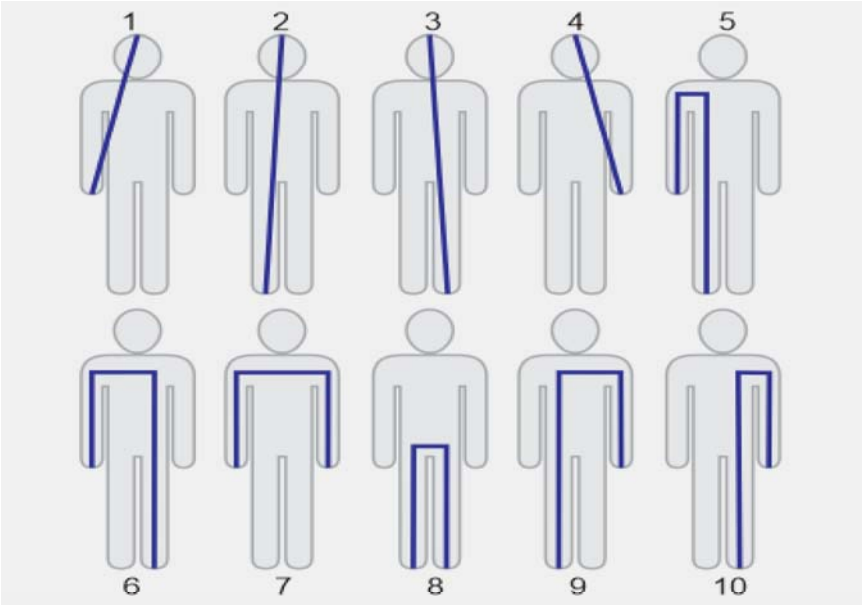
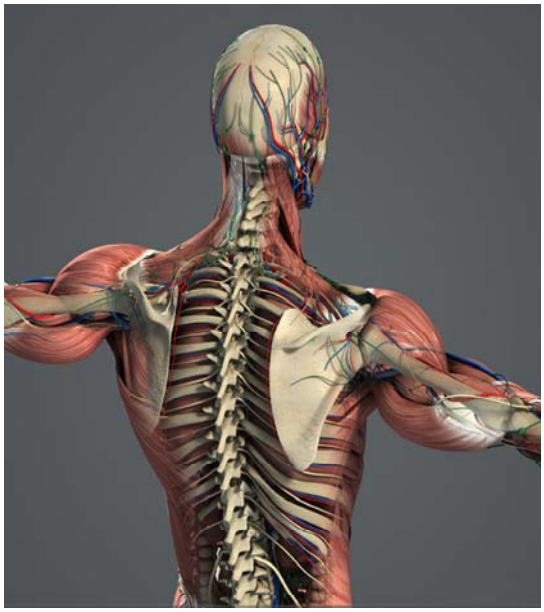
PATHWAYS

Pathway	Anode	Cathode	Diffusion	Dispersion	Polarization	R 50KHz	Xc 50KHz
1: RW-RH	93.784	63.899	8.386	2.507	69.254	8.222	97 (79.5)
2: RW-RF	108.302	63.669	6.246	1.511	36.303	172.091	20.6 (6.8)
3: LW-LF	90.564	75.184	5.904	1.504	41.228	182	23 (7.2)
4: LW-LH	83.138	147.195	10.604	1.545	40.142	200	26 (7.4)
5: RH-RF	24.739	25.619	9.206	1.448	37.909	343.255	47 (7.8)
6: RH-LF	25.93	24.747	12.288	1.462	33.649	354	52 (8.4)
7: LH-RH	28.457	33.184	8.877	1.477	41.495	352	51 (8.2)
8: LF-RF	27.705	28.15	6.986	1.411	50.231	309.836	38 (7)
9: LH-RF	17.269	22.119	4.945	1.431	51.358	348.091	46 (7.5)
10: LH-LF	19.449	25.655	6.739	1.434	46.304	359.825	49 (7.8)

GENERAL METABOLIC SYSTEM

Parameter	Value	Norms
Conductivity	51.93 uS/m	
Diffusion	8.02	
Dispersion	1.48	
Reactance	44.96	
Polarization	43.49	





Physician`s Notes:

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VitalScan

Electro Interstitial Scan - Living Tissue

Demo Patient
Gender:Male
Age:51 (DOB: Jan 1 1966)
Weight:183 lbs
BMI:27
Height:5 ft 9 in

Physician Only Report
Exam Date:Sep 11 2017 14:57

DIGESTIVE: SYSTEM

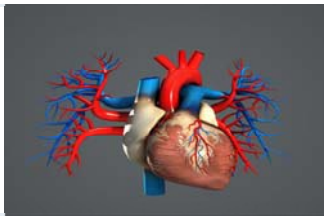
Interstitial pH = 64 (>50)(7.9)
Na+/K+APTase Activity = 54 (>50)(42.3)
Oxygen Delivery = 51 (>50)(1.4)
Intracellular Water = 33.2% (34-40)
Hydration = 74.3% (55-70)
Dry Lean Mass = 20.3% (15-30)

Overall Score = 54

CARDIOVASCULAR: SYSTEM

Interstitial pH = 71 (>50)(7.7)
Na+/K+APTase Activity = 72 (>50)(41.4)
Oxygen Delivery = 52 (>50)(1.5)
Intracellular Water = 40.6% (34-40)
Hydration = 72.3% (55-70)
Dry Lean Mass = 19.5% (15-30)

Overall Score = 62



HORMONAL/THYROID: SYSTEM

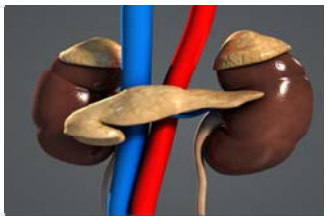
Interstitial pH = 70 (>50)(8.2)
Na+/K+APTase Activity = 54 (>50)(41.5)
Oxygen Delivery = 52 (>50)(1.5)
Intracellular Water = 33.4% (34-40)
Hydration = 73% (55-70)
Dry Lean Mass = 20.3% (15-30)

Overall Score = 56

UROGENITAL & RENAL: SYSTEM

Interstitial pH = 60 (>50)(7)
Na+/K+APTase Activity = 60 (>50)(50.2)
Oxygen Delivery = 51 (>50)(1.4)
Intracellular Water = 36.1% (34-40)
Hydration = 75.1% (55-70)
Dry Lean Mass = 19.8% (15-30)

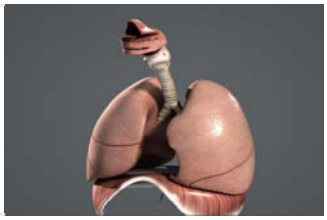
Overall Score = 55



RESPIRATORY: SYSTEM

Interstitial pH = 74 (>50)(7.4)
Na+/K+APTase Activity = 86 (>50)(40.2)
Oxygen Delivery = 53 (>50)(1.5)
Intracellular Water = 37.9% (34-40)
Hydration = 84.8% (55-70)
Dry Lean Mass = 25% (15-30)

Overall Score = 67



BRAIN: SYSTEM

Interstitial pH = 100 (>50)(25.2)
Na+/K+APTase Activity = 58 (>50)(44)
Oxygen Delivery = 56 (>50)(1.6)
Intracellular Water = 26% (34-40)
Hydration = 169.1% (55-70)
Dry Lean Mass = 25% (15-30)

Overall Score = 57

Physician`s Notes:

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VitalScan

METABOLIC REPORT

Demo Patient
Gender: Male
Age: 51 (DOB: Jan 1 1966)
Weight: 183 lbs
BMI: 27
Height: 5 ft 9 in

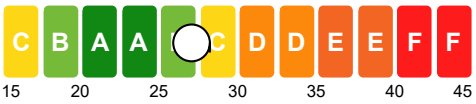
Physician Only Report
Exam Date: Sep 11 2017 14:57

Ideal Body Weight = 160 Lbs
Real Body Weight = 183 Lbs
Basal Metabolic Rate (BMR) = 1751 cal
Total Daily Energy Expenditure = 2626 cal

Normal | Borderline Normal | Mild - Moderate | Borderline Abnormal | Abnormal - Severe

Body Mass Index (BMI) = 27

(Normal value range: 19 - 25)



Body mass index, or BMI, is a new term to many people.
However, it is the measurement of choice for many physicians and researchers and it is used to estimate a healthy body weight based on a person's height, assuming an average body composition.

It is the most widely used diagnostic tool to identify weight problems within a population.
Body mass index is defined as the individual's body weight divided by the square of his or her height.

The body mass index can be used to identify if you are overweight.
A drawback of the calculation is that if you are muscular it can suggest you are overweight due to muscle density.

An elevated BMI is associated with Metabolic Syndrome and is tied to an elevated risk of type 2 diabetes, hypertension, and cardiovascular disease.

Risk of Associated Disease According to BMI and Waist Size

18.5 or less: Underweight - N/A
19 - 25: Normal - very low risk of associated diseases
26 - 29: Overweight - prone to health risks
30 - 40: Overweight to Obese - high risk of associated diseases
40 or greater: Extremely Obese - very high risk of associated diseases

The Basal Metabolic Rate (BMR) shows the calories (energy) your body uses per day while at rest.
The Total Daily Energy Expenditure shows the calories needed to maintain your current weight.

For healthy weight management increase your caloric usage (exercise) and decrease you caloric intake below the Total Daily Energy Expenditure towards the Basal Metabolic Rate (BMR).

Eating a high quality, nutrient dense diet (fresh vegetables (cooked and raw), chicken, fish, eggs, and yogurt) and staying away from carbohydrates and poor quality fats helps to prevent cravings and aids in weight loss.
If you go too far below the Basal Metabolic Rate (BMR) your metabolism may slow down making weight management more difficult.

Physician`s Notes:

All results and analysis should be considered in the context of persons/candidate's case history, symptoms, diagnosis, current medications, treatment plans and therapies.
Final diagnosis is the sole responsibility of the licensed medical practitioner after persons examination, lab tests and/or other clinical findings as necessary.