BODY HEALTH ANALYZER HEALTH ASSESSMENT SUMMARY

The Body Health Analyzer (**BHA** for short) provides a testing tool for quick health assessment based on short-term heart rate variability analysis. During this test, you will record the client's heart rhythm for 5 minutes using a special wireless finger sensor. The software will process a captured pulse signal to measure heartbeat intervals and then run a special HRV analysis algorithm. The results of this test will provide two sets of health assessment summaries: stress summary and health test summary.

Stress Summary

Stress Summary provides information on whether there are signs of chronic stress and how the body responds to it.

The following metrics are included in the Stress Summary:

STRESS INDEX – provides an estimation of stress levels. Lower stress levels are associated with better functional adaptivity of the body to adverse factors. Systematically high stress levels not associated with the presence of acute stress factors may indicate chronic stress, inadequate body's functional adaptivity and possible chronic illnesses.

AUTONOMIC BALANCE –provides an estimation of functional balance between the sympathetic and parasympathetic branches of the autonomic nervous system. Maintaining a good autonomic balance at rest is sign of absence of chronic stress and associated illnesses.

RESTING HEART RATE – an average heart rate reading taken at rest. It is considered as a good general indicator of cardiovascular and overall health. Healthy individuals maintain their resting HR within certain ranges. Regularly captured too low or too high resting HR may indicate the presence of some issues with cardiovascular or overall health.

HRV INDEX – provides an estimation of the overall activity of the autonomic nervous system. Higher readings indicate an adequate function of the autonomic nervous system and functional adaptivity of the body. Systematically captured low readings may be considered as a sign of autonomic dysfunction and the presence of some chronic conditions.

VAGAL INDEX – provides an estimation of the tone of the Vagus nerve which predominantly represents the function of the parasympathetic nervous system. Adequate levels of vagal tone are essential to maintain health and high adaptivity of the body. Low levels captured systematically could be a sign of presence of some chronic conditions.

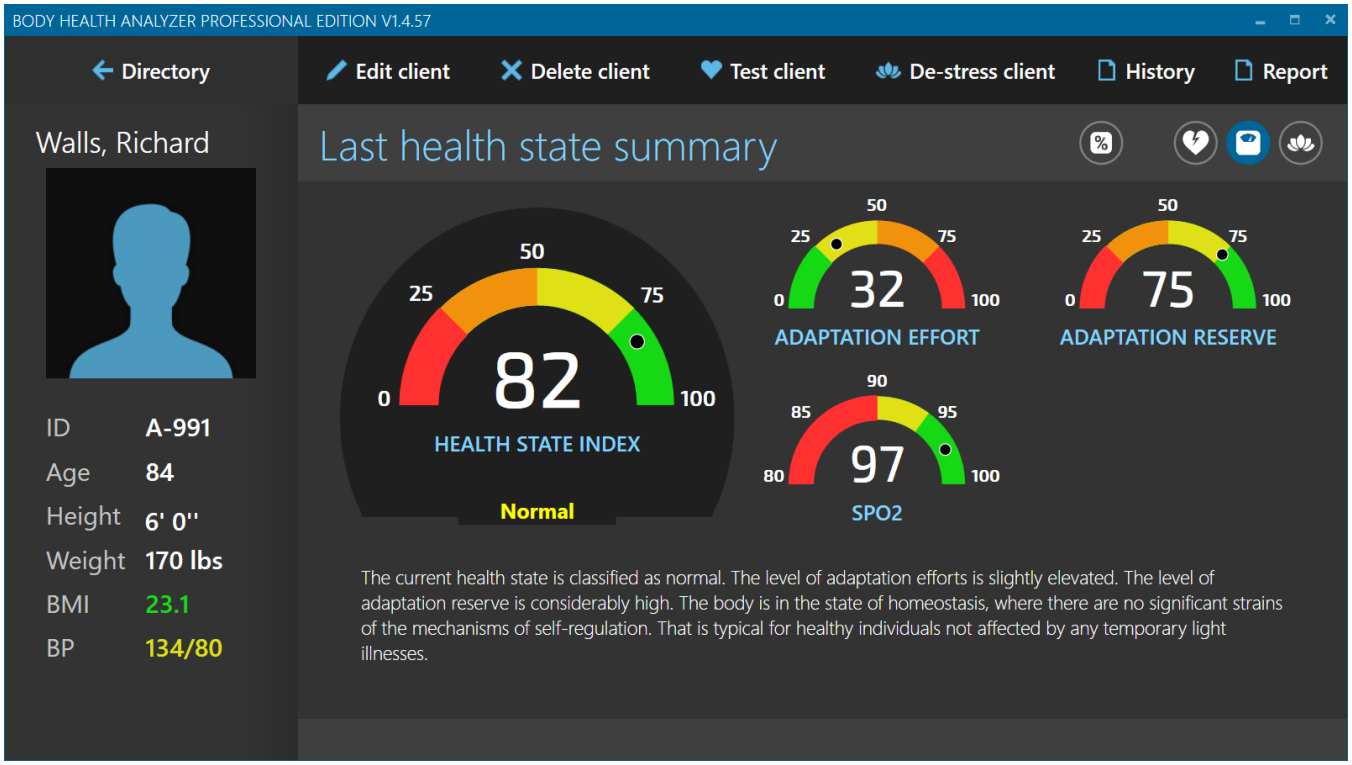
The following chart will help to interpret the standard Stress Summary output metrics:

Output Variable	Units	Full Range	Interpretive Subranges	Scale Color	Meanings
Stress Index	arbitrary units	0 – 1000	0 … 150	Green	Low-stress level, normal functional adaptation, high level of functional reserves for adaptation.
			150 … 300	Yellow	High functional stress, the body is working hard to adapt to negative factors (stressors, disease, environment, etc.) spending off its functional reserves.
			300 … 600	Orange	Very high-stress level, cardiovascular, endocrine and autonomic nervous system are under substantial workload spending too much of the body's functional reserves to maintain the overall body function. The long-lasting condition may trigger chronic disease development.
			600 … 1000	Red	Extremely high stress. Depletion of the body's functional reserves, failure of the mechanisms of functional adaptation (cardiovascular, endocrine and autonomic nervous systems). High risk of developing an acute cardiovascular condition.
Autonomic Balance	arbitrary units	-100 … +100	-100 … -25	Blue	**Relaxation condition** when the parasympathetic regulatory activity prevails over the sympathetic activity.
			-25 … +25	Green	The **In-balance condition** when both sympathetic and parasympathetic regulatory activities maintain their dynamic equilibrium.
			+25 … +100	Red	**Stress condition** when the sympathetic regulatory activity prevails over the parasympathetic activity.
Resting HR	BPM	30 – 130	30 … 40	Red	Significant bradycardia
			40 … 50	Yellow	Mild bradycardia
			50 … 80	Green	Normal rhythm
			80 … 90	Yellow	Mild tachycardia
			90 … 130	Red	Significant tachycardia
HRV Index	arbitrary units	0 … 100	0 … 20	Red	Significant decrease in the autonomic regulatory activity. Usually a sign of deficiency of the autonomic control associated with some chronic conditions.
			20 … 30	Orange	Low level of the autonomic regulatory activity. Usually associated with high stress. Chronic stress when appears systematically.
			30 … 40	Yellow	Mild decrease of the autonomic regulatory activity. Often occurs when stressed.
			40 … 100	Green	The normal level of the autonomic function. Typical for healthy unstressed individuals.
Vagal Index	arbitrary units	0 … 100	0 … 10	Red	Vagus nerve tone is extremely low. This could be associated with extreme stress or well-developed chronic illness when appears systematically.

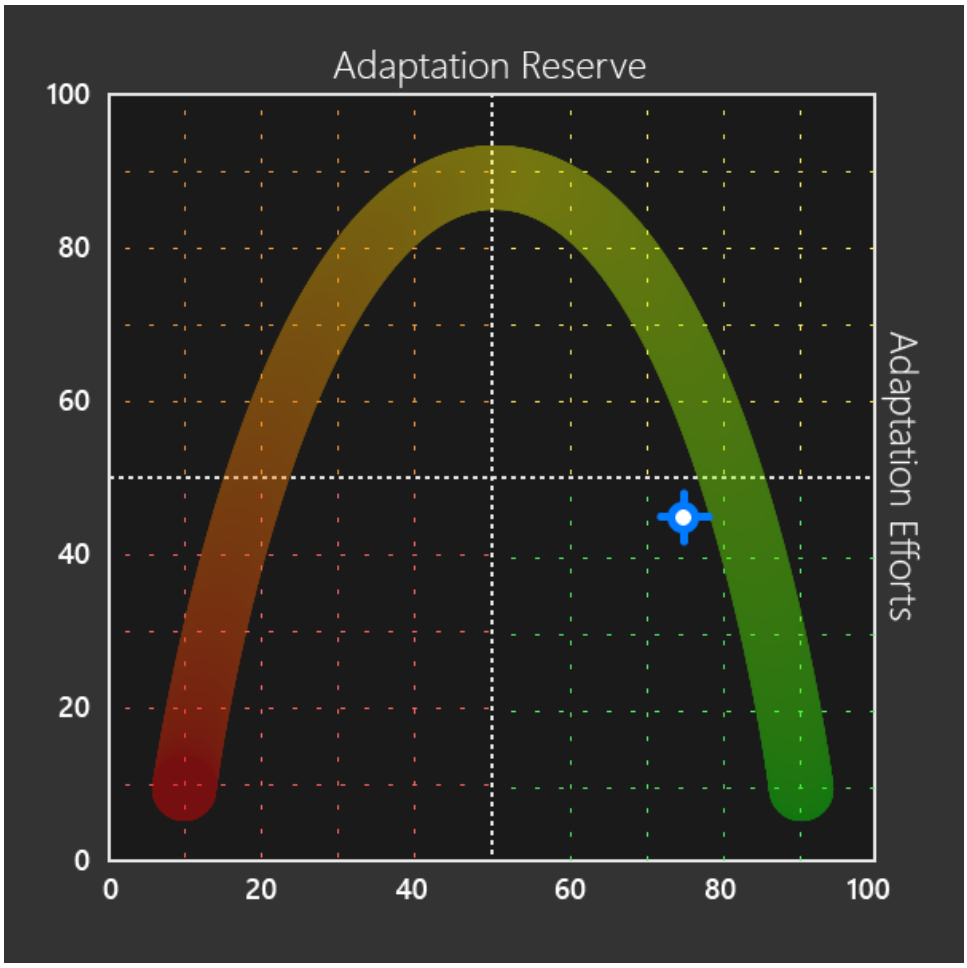
Output Variable	Units	Full Range	Interpretive Subranges	Scale Color	Meanings
			10 … 20	Orange	Vagus nerve tone is considerably low. This could be a sign of high stress or the presence of chronic illness when appears systematically.
			20 … 30	Yellow	Vagus nerve tone is slightly below normal. This could be a sign of a stressful condition. When appears systematically, it could be a sign of shifting toward borderline with a possible chronic condition.
			30 … 100	Green	Vagus nerve tone is within normal limits. Typical for healthy individuals free of chronic stress burden.

Health State Summary

The Health State Summary provides the results of a more complex analysis of the heart rate variability (HRV) data obtained during the health assessment test.



The system utilizes a special mathematical model describing a general process of disease development.



This model takes several standard HRV metrics as inputs and produces the following output metrics:

ADAPTATION EFFORT – provides an estimation of the intensity of activity of the mechanisms of regulation of bodily functions aimed to adapt to adverse changes inside and outside of the body and maintain its homeostasis. Many chronic illnesses are associated with chronic stress as a key part of their pathogenesis. Chronic stress disturbs homeostasis so the body's mechanisms of self-regulation keep trying to restore it. So the stronger chronic stress the more efforts are taken for body adaptation.

ADAPTATION RESERVE – provides an estimation of the amount of body's resources available in the body's efforts to restore its homeostasis. The healthy organism has a high level of internal reserves for efficient adaptation. Chronic stress causes the body to spend these reserves in continued efforts to adapt and regain its homeostasis.

HEALTH STAGE INDEX – provides an estimation of the process of disease development passing several stages from the normal condition to an evident pathology. This metric is a product of a complex relation between adaptation efforts and adaptation reserves. Its scale has several ranges indicating the sequence of states the body falls in while the disease is progressing.

SpO2 – indicates how well your body is supplied with oxygen. It is one of the key metrics of cardio-respiratory health.

The following chart will help to interpret the standard Health State Summary output metrics:

Output Variable	Units	Full Range	Interpretive Subranges	Scale Color	Meanings
Adaptation Efforts	Arbitrary units	0 … 100	0 … 50	Low	Body's efforts to achieve homeostasis are not significant. Its interpretation depends on the level of adaptation reserve. If it is associated with high adaptation reserve, this means that the body efficiently maintains its homeostasis. If it is associated with low adaptation reserve, this means that the body does not have enough resources to keep its adaptation efforts high.
			50 … 100	High	Body's efforts to achieve homeostasis are significant. Its interpretation depends on the level of adaptation reserve. If it is associated with high adaptation reserve, this means that the body tries hard to achieve homeostasis and has good chances to do that. If it is associated with low adaptation reserve, this means that the body's resources for self-regulation are running out but still enough to keep its adaptation efforts high.
Adaptation Reserve	Arbitrary units	0 … 100	0 … 50	High	Sufficient amount of body's resources for self-regulation to succeed in achieving and maintaining its homeostasis.
			50 … 100	Low	Insufficient amount of body's resources for self-regulation to succeed in achieving its homeostasis.
Health Stage Index	Arbitrary units	0 … 100	0 … 25	Red	The body's mechanism of self-regulation is failing. Its adaptation reserves are low so much that cause insufficient adaptation efforts to achieve homeostasis. This state is usually associated with the presence of an evident pathology.
			25 … 50	Orange	The body's mechanism of self-regulation is highly strained. Its adaptation reserves are low but the body is still able to make a high level of adaptation efforts to achieve homeostasis. This state is usually associated with the presence of some pathology at its early or transient stage usually not manifesting any evident signs of disease.
			50 … 75	Yellow	The body's mechanism of self-regulation is highly active. Its adaptation reserves are still high enough so the body makes a high level of adaptation efforts to achieve homeostasis. This state is usually associated with shifting from the normal healthy condition to a borderline state usually not manifesting any evident signs of disease.
			75 … 100	Green	The body's mechanism of self-regulation activity is low. Its adaptation reserves are high and it does not make any significant adaptation efforts to maintain homeostasis. This state is usually associated with normal healthy condition.
SpO2	%	0 … 99	0 … 90	Red	Blood oxygen saturation is very low. This could be a strong sign of a cardio-respiratory health problem.

Output Variable	Units	Full Range	Interpretive Subranges	Scale Color	Meanings
			90 … 95	Yellow	Blood oxygen saturation is below a normal range. If it persists, consult with a doctor may be needed.
			95 … 99	Green	Blood oxygen saturation is within a normal rage.