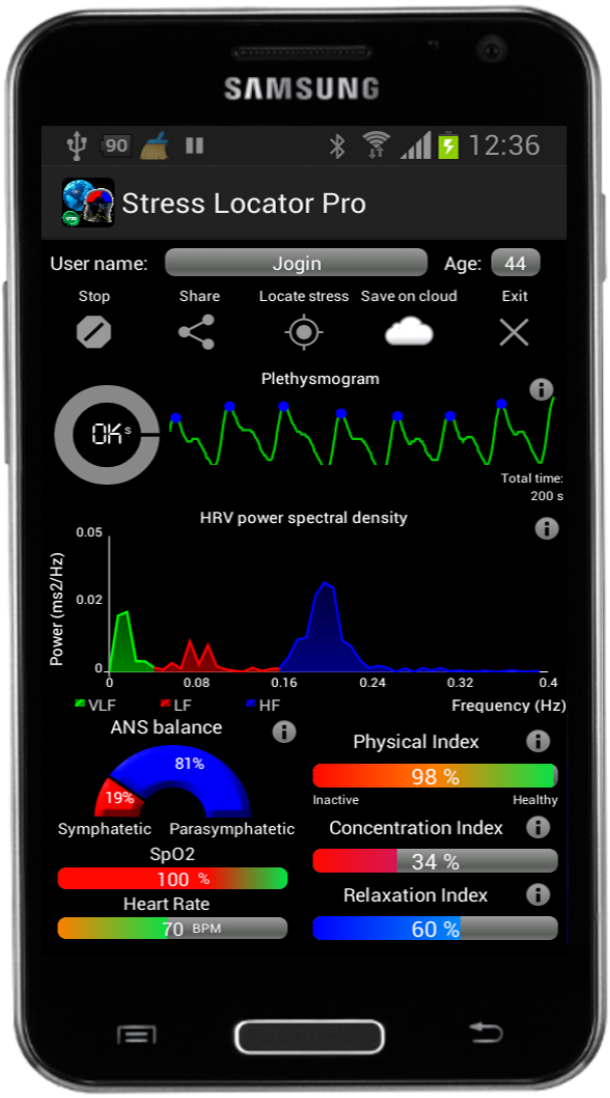
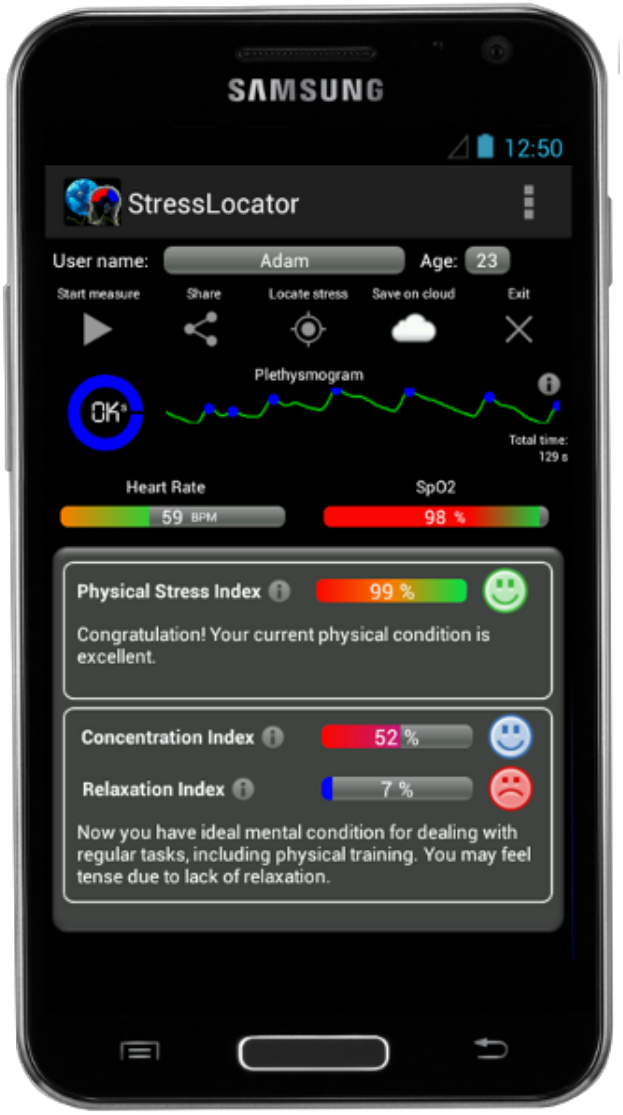
Happy Electronics s.r.o.
Beranových 130 Praha 18 Letňany

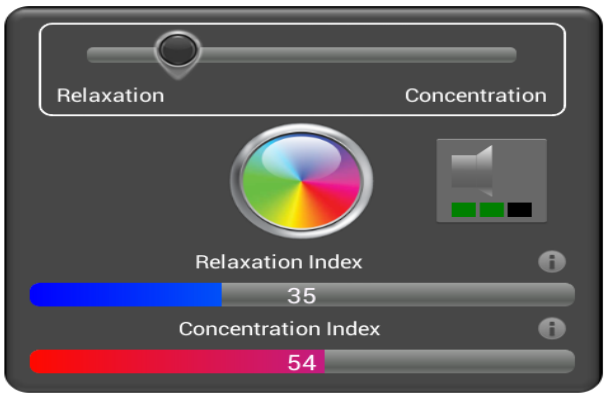
STRESSLOCATOR APP USER'S GUIDE

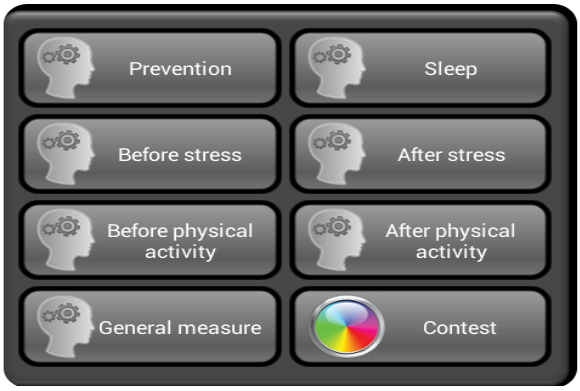
2014/4 Version 1.25

Differences and possibilities









Content

Before you start

Before startup

Before you start measuring, make sure your oximeter is switched on and the bluetooth transmitter of your android device is activated.

Oximeter (digital heartbeat measuring device)

Is a very sensitive device. We recommend that you limit your movement as much as possible while measuring. The results of your measurments will be more precise.

Measuring

Is done continuously throughout the whole measuring session. The longer your session is, the more precise your results will be.

Age

Don't forget to set your age, your results will be more precise.

What is StressLocator

O About the app

This mobile app will determine your physical and mental state with help of a bluetooth oximeter or the camera of your phone or tablet. It measures and evaluates your heartbeat and blood oxigenation. After just two minutes, you will get results with evaluation and tips on what mental activity you are prepared for. It can become an ideal tool for planning your activities. If you need to achieve calm or concentrated state of mind, you can try another function. The biofeedback with breathing exercises will help you relax or concentrate. You can immediately see your progress. With our easy-to-use app and our oximeter, we guarantee immediate and precise results.

History

The StressLocator, which we have been developing for almost a year, consists of three main parts: the sensor, which measures heartbeat, the app for android devices and the server application. These three components allow you to measure your levels of physical and mental stress and immediately evaluate your condition. Measuring can be done anywhere, all you need is your android device with our app. The sensor will guarantee you precise and comfortable measuring. The results can be used to plan your activities and to utilize your full potential.

App versions

There are now two versions available: the free version, which allows you to try our app, and the pro version, which offers more indexes, breathing trainings, unlimited measuring time, breathing metronome and history of your previous measurements.

Free version

- Measurement length is limited to 2 minutes
- Breathing metronome is not available
- History of measurements is not available
- Only 3 indexes
- Possibility to participate in the breathing contest
- Possibility to share your data anonymously and compare your results with the rest of the world

Pro Version

- Unlimited measurement time
- ANS index, heartbeat frequency and 12 more indexes
- Metronome and breathing exercises are available
- Result history and the possibility to compare your results
- Possibility to share your data anonymously and compare them with the rest of the world
- And more

Controls

Start measuring – expert view only (pro version)

Share your results with commentary

Share your position and results on the world map

End the program

Indexes

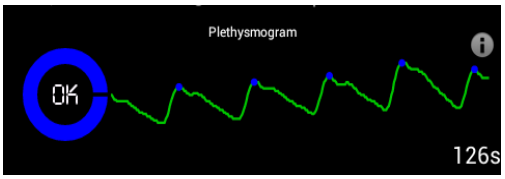
Username and age

Set your username and age in the menu. Your results will be more precise and if your app is used by more people, you will have a better overview of your results.

Timers

The timer shows how much time is left until the measurement is over and your results are displayed. PRO version owners have the advantage of unlimited time, which gives them more precise results.

Plethysmogram



This is your heart rate. Make sure that each peak has a blue dot on top. If not, slightly move your finger on the camera of your phone to get better results.

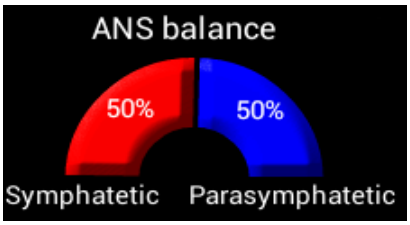
ANS – Autonomous nervous system

ANS keeps optimal conditions of your organism. It's activity is carried out without your concious control. ANS keeps your heart rate and respiratory rate and controls various other processes such as digestion, perspiration, salivation etc. Although most of it's activities are unconcious, some, like breathing, work in accordance with concious processes. ANS is divided to two parts: sympaticus and parasympaticus.

Sympaticus: Is responsible for activities that prepare your body for an immediate reaction (act, fight, run…). If sympaticus prevails in the graph, your body is in the immediate reaction phase (concious concentration). The amount of blood rises, your heart beats faster, your organism is prepared for immediate changes.

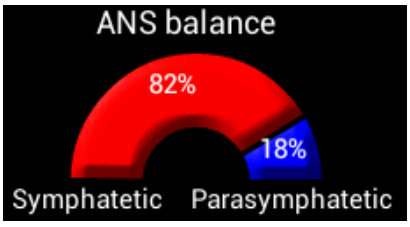
Parasympaticus: : Affects activities connected with rest and recuperation. Your body is concentrating on regeneration. If parasympaticus prevails in the graf, your body is relaxing and isn't ready for more demanding activities.

Balance



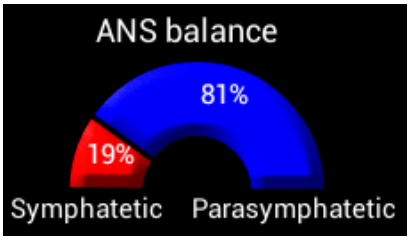
In this state, both systems are balanced and your body works in equilibrium. This state supports creativitiy and rest. In this phase, your body should work optimally.

Prevalence of sympaticus



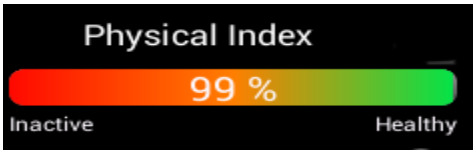
If sympaticus prevails in your organism, your body is prepared for an immediate reaction. If you're working or doing any other activity, this state is in order. The body uses 82 % of it's total activity. However, long-term prevalence of sympaticus rises stress and fatigue. Watch this index carefully.

Prevalence of parasympaticus



If parasympaticus prevails, your body is resting and isn't prepared for an immediate reaction. In this phase it isn't ideal to work or to concentrate. This state is usually prevalent in the evening before sleep.

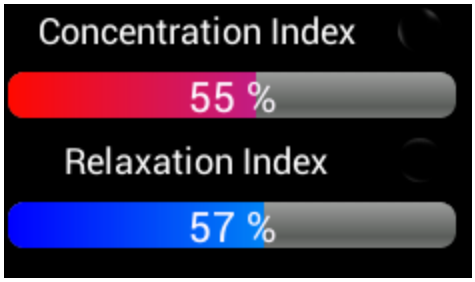
Fyzický index



This index is based on your heart rate variability. It shows the percentage of energy you currently have at your disposal.

Physical index score

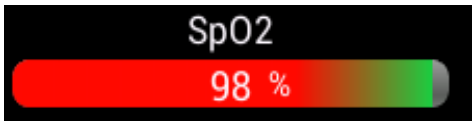
91 - 100 – physicaly in order
70 - 90 – slightly tired
50 - 70 – very tired
0 - 50 – Extreme exhaustion



Concentration index: Indicates how concentrated you are on an activity, how much you are able to currently concentrate.

Relaxation index: Indicates, how much your body is able to relax.

SpO2

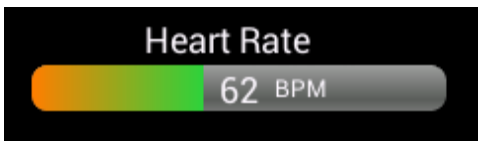


Percentage of blood oxigenation in your body. In the short term this value can be lower, depending on your previous physical activity. This indicator is individual. For an active athlete it can be as low as 80%.

SpO2 score

100% - 90% The average value is 96,5%
90% - 80% During or after a sport performance
70% - 60% A serious problem

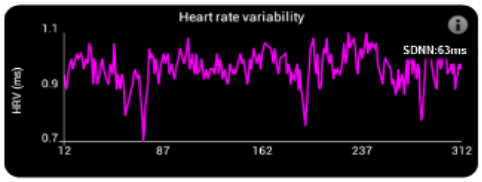
Heartbeat



Lower value is common for athletes, who have a stronger heart which is able to pump more blood.

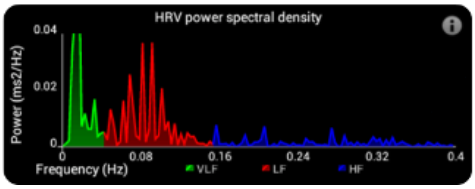
Men	75 beats	Advice: It's good to know your average heart rate.
Women	82 beats	
Athletes ca.	60 beats	

Heart rate variability



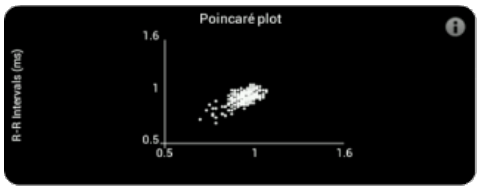
Indicates pulse variability between the beats of your heart. The higher the pulse variability, the better your physical condition. Lower heart rate variability indicates tiredness of your organism.

HRV power spectral density (HRV)



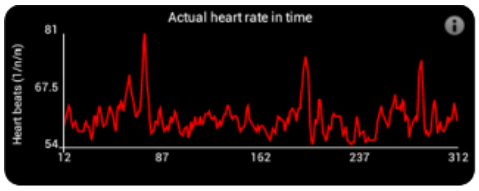
Indicates the power spectral density of the HRV signal. There is a certain level of corelation between HRV signal and harmonic sinus waves. This graph is designed for therapists and experts.

Poincaré plot



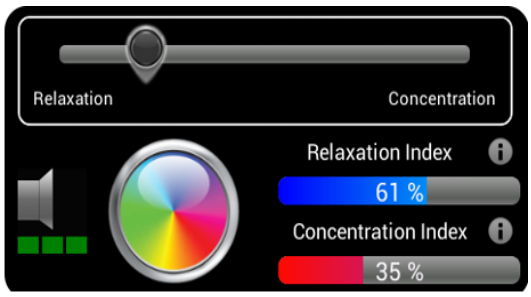
One of many techniques used to analyze heart activity. It is used to detect some heart diseases and proper heart functioning.

Actual heart rate



Actual heart rate development in time

Training



Training is focused on enhancing your concentration or relaxation by precise breathing. For this, the colorful metronome (the round indicator) is used. When the metronome is growing, breath in, when the metronome is shrinking, breath out. The inhalation and exhalation phases are separated with a sound. You can change the volume or mute the sound completely.

Metronome phases (colorful breathing indicator)

Measuring categories

Categories can be focused or certain times of the days or on certain activities. After some time, you will have enough measurements in each category to see your progress after training. You have up to 8 categories available. After some time, you will see progress of your state in every category. You can also share your data anonymously on the server and compare your results with measurements from around the world. You can even get into the world Top 10.

User References

Jusso Kangas (Google play)
This was actually able to get your heart rate from your finger trough camera on my S3. Other app was not able to do this. There is quite lot of features in this as well. Breathing exercise was cool. I liked also the free version, but I liked to have more features and support developers as well because I think we should have more good quality health apps :)

Stacy Fisher (Google play)
Curious... Just curious as to why you state the free application has a pulse oximeter using the phone as well as a bluetooth oximeter. I would love to give you 5 stars but there is no pulse oximeter for use with the camera in the phone

Matt Way (Google play)
Nice but wish could... Test the hrv portion, if only for a few minutes, on the free version as would likely purchase but need to test it first (have clinical expertise with this modality)

T. Dudková (AVS přístroje)
Velmi děkuji za Vaši vstřícnost a ochotu! Přístroj mi opravdu pomohl, opět se můžu soustředit a efektivně se učit!
Děkuji a přeji mnoho zdaru

Adam Šolc (Google play)
Very cool app

Petr Kollman(Google play)
Great application! I feel much better after 2 minutes breathing. I will try it again and I hope that my score will be better.

StressLocator Free

Apps for better concentration, realxation and breathing

Time indicator

Displays time remaining in seconds until the app finishes measuring your index levels and ANS balance. The time can be changed in the settings menu (time window). Longer measuring time means more precise results.

Physical index

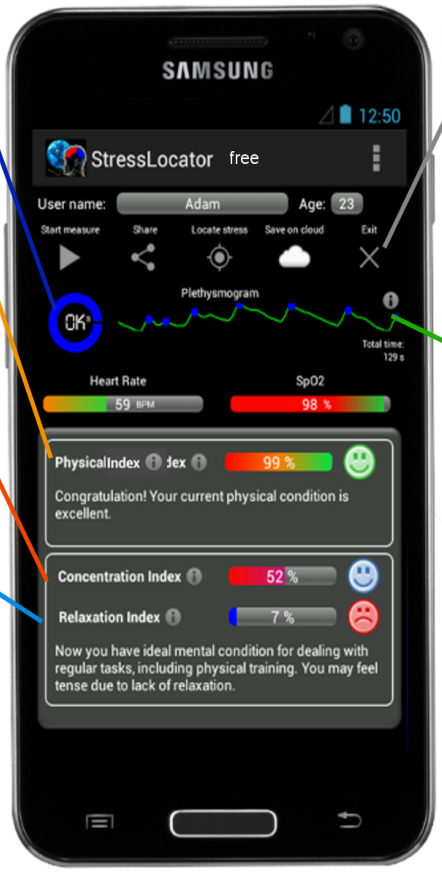
Displays your level of tiredness in the range between 0 and 100.
It's derived from heart rate variability. The higher it is, the better you are prepared for physical activity. Measureement precision can be affected by moving your arm during measuring.
.

Concentration index

The concentration index is derived from the activity of the sypmathetic nervous system. In expert view, it's activity is displayed in the red part of the HRV power spectral density graph. The higher the displayed index, the higher is the frequental harmony of the sympathetic nervous system, and the more control you have over your body and brain.
..

Relaxation index

The relaxation index is derived from the activity of the parasympathetic nervous system (PSNS). In expert view, the activity of the PSNS is displayed in the blue part of the HRV power spectral density graph. The higher the displayed index, the higher is the frequential harmony of the PSNS and the better can be your feeling of comfort and relaxation.



Menu

Start/stop button

Share button

Shares your location during your measuring on the StressLocator map (compare your results with other people around the world)

Leave the measurment and return to main menu

Heart rate

oThis is your heart rate in real time. Make sure that every peak has a blue dot on top. If not, slightly move the finger on your device's camera to get better results.

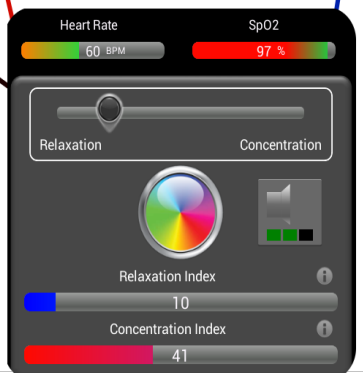
Heart rate indicator

This graph indicates your current heart rate per minute.

SpO2

Percantege of oxygen in blood. This value cannot be measured with your device's camera.

Breathing exercise

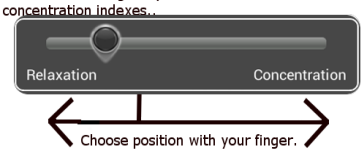


Breath indicator

Depending on your exercise settings, breath according to the indicator. Inhale up to maximum, exhale to minimum.

Exercise module

Dpeneding on your settings you can breathe to enhance your ability to concentrate or to relax. Your state will show on the change of your relaxation and concentration indexes..



Volume setting

Set sound volume depending on your needs.
Available in the Pro version only..

StressLocator Pro

Apps for better concentration, realxation and breathing

Time indicator

Displays time remaining in seconds until the app finishes measuring your index levels and ANS balance.
The time can be changed in the settings menu (time window). Longer measuring time means more precise results.

ANS balance

Displays the activity of the autonomic nervous system (ANS). It's two parts are **the sypmathetic** nervous system system and the parasympathetic nervous system. ANS is responsible for the regulation of internal organs and glands. **The parasympathetic** system is responsible for stimulation of activities connected with recuperation, digestion and reproduction. It's activity supplements the activities of other parts of the ANS, especially of the sympathetic system, which is responsible with stimulation activities connected with the fight-or-flight reaction.

SpO2 Indicator

Percantege of oxygen in blood. This value cannot be measured with your device's camera.

Heart rate indicator

This graph indicates your current heart rate per minute.

Other graphs

Menu

Start/stop button

Share button

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Leave the measurment and return to main menu

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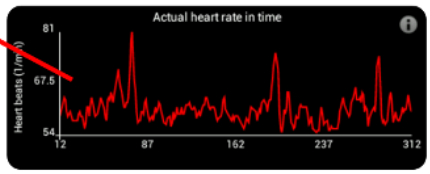
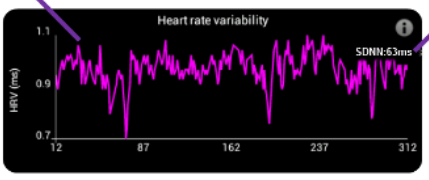
Heart rate tachogram

This pulse tachogram. It displays the changes of heart rate frequency in real time.



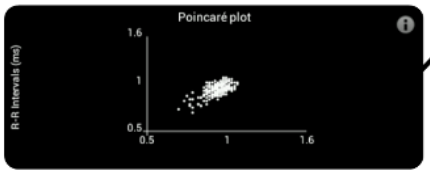
Heart rate variability tachogram

Here you can the the heart rate variability. The graph displays pulse-to-pulse intervals. In other words, the variability of heartbeats.



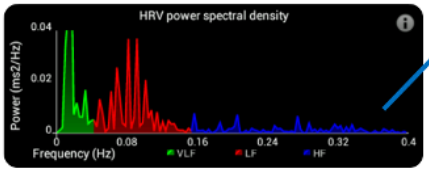
SDNN

The standard deviation of the NN intervals of the main parameters of the heart rate variability. Simply put, it reflects the precision of the heart rate measurement



Poincaré plot

A plot in which every NN interval is placed against other NN intervals. With enough data, this can be used as a tool to interpret your health..



HRV power spectral density

"This graph displays the power spectral density of the HRV signal. There is a certain level of correlation between the HRV signal and harmonic sinus waves of various frequences placed on a vertical axis in the range between 0,04 Hz and 0.4Hz. In the graph, the ranges correspodning to very low (VLF), low (LF) and high frequency (HF) are highlighted. The ratio of the high and low frequency corresponds with the ANS balance.