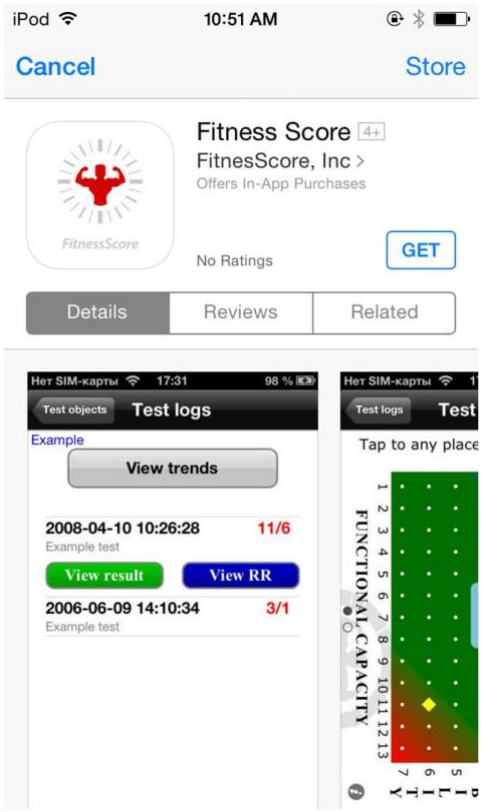
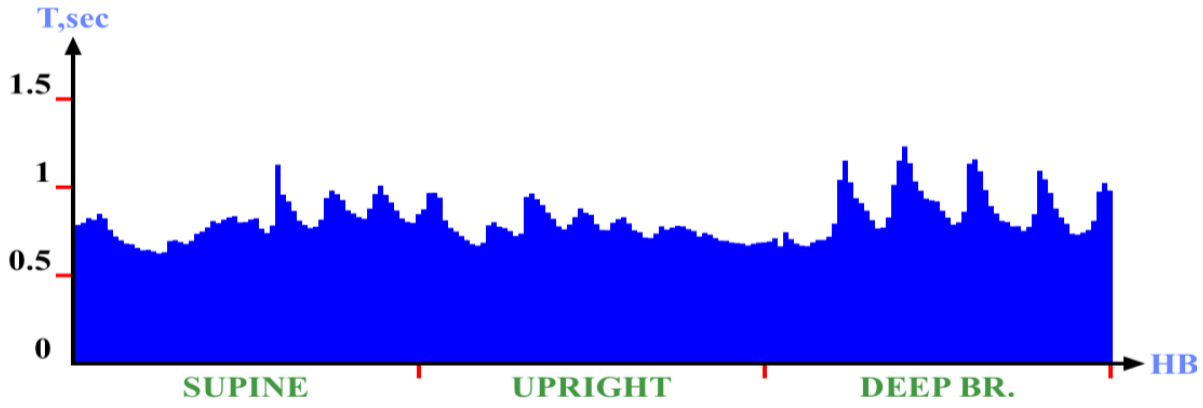
FITNESS SCORE ASSESMENT

Fitness Score application provides you with a powerful tool for fitness evaluation that helps the personal trainer to design an individual program track the client's progress and improve his or her fitness score. The assessment is based on Heart Rate Variability analysis one of the most common physiological assessment. This method has been recognized by today's physiologists as a reliable indicator of fitness level. What is Heart Rate Variability? Our heart rate is constantly fluctuating, and the intervals between heart beats vary in length. These fluctuations in heart rate are known as Heart Rate Variability. Assessment based on Heart Rate Variability analysis is scientifically proven to monitor functional integrity of the body and give an accurate fitness evaluation. Please note that the results of the evaluation should be interpreted by a qualified fitness professional depending on each individual case.



The test takes only 3-4 minutes and can be performed anytime and anywhere; the client is simply required to rise from lying to standing position and breathe deeply. After this short test the results are immediately displayed on the screen. During the test the heart intervals data is recorded and displayed in the special graph, called Rhythmographic strip, or Rhythmogram, shown below.

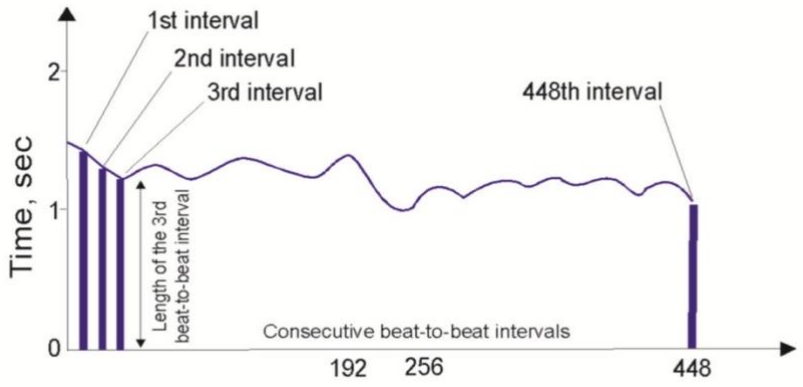


Each vertical blue line corresponds to the interval between two consecutive heart beats: the length of the line reflects the length of the interval, in seconds. During the test the blue lines are added on the horizontal axis and form the rhythmographic strip. This graph shows one's heart rate fluctuations during the whole test, or one's Heart Rate Variability portrait. The fitness test includes 4 stages:

1. The Supine stage, when the client is lying on his or her back.

2. The Transition period, during which the client is changing position from lying to standing.

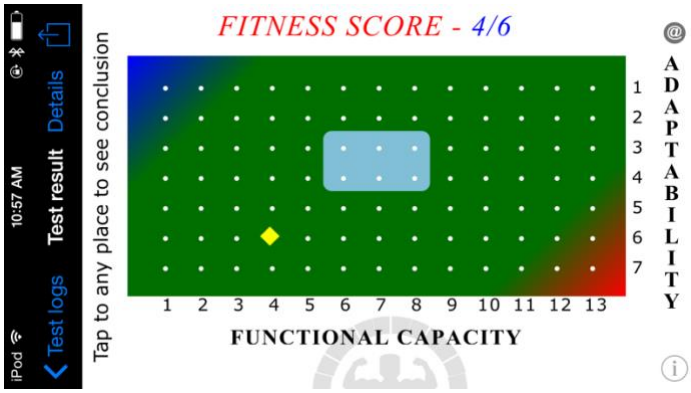
3. Deep Breathing stage, when the client is breathing deeply while standing or sitting.



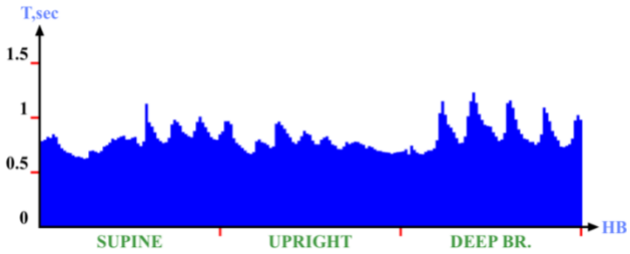
On the picture of the rhythmogram you can see three regions that reflect three stages of the test. The first 192 blue lines (heart beats) correspond to the Supine stage of the test, the next 64 blue lines to the Transition period, and the last 192 blue lines show the Upright stage of the test.

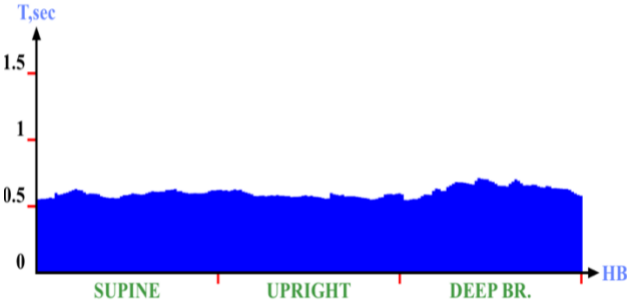
THE FITNESS SCORE

The fitness test score is displayed on the Fitness Chart. This chart graphically represents the results of the quantitative analysis of the client's Heart Rate Variability during Orthostatic test. This chart is the "instant snapshot", immediately demonstrating the client's fitness score including functional capacity and adaptability.

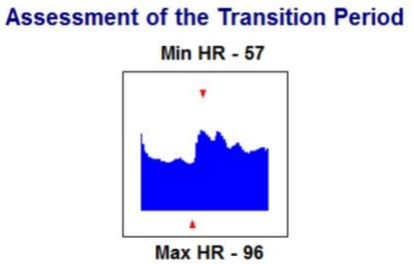


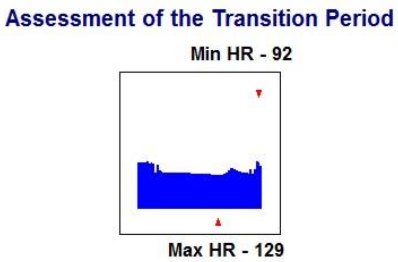
Functional capacity is a component of fitness that reflects the ability to function in a variety of circumstances. The functional capacity level is an indicator of general health, and may vary in response to stress and changes in lifestyle. Heart Rate Variability reflects functional integrity of the body and is an excellent indicator of the functional capacity level. Variations in heart rate create a wavelike structure of the rhythmographic strip. Usually better functional capacity levels result in more perceptible waves in the "portrait", and the best functional capacity has been called "the dance of the healthy heart". You can compare the rhythmogramm of a well-trained athlete and an untrained individual below. The variation of the heart rate is more detectable in the second case while the rhytmographic strip is almost flat. The flat rhythmographic strip occurs when beat-to-beat intervals are the same length. The flat of rhythmographic strip means there is not enough energy in pacemaker's cell of a sinoatrial node. A good exercise program can help you achieve your optimal functional capacity level.





Adaptability is the measure of efficiency of cardiovascular system in response to physical activity. This component of fitness shows the ability of the heart, first of all adaptability of the myocardium and the rest of circulatory system to adapt to physical loads. The "stronger" one's cardiovascular system the higher the level of adaptability will be. This component of fitness can be significantly improved with the right exercise program as well as with diet.





These two components of fitness are complementary yet essentially different, and are assessed in two distinct ways. The level of functional capacity is determined by analysis of the Heart Rate Variability during the stationary phases of the test: the Supine and the Upright stages. The level of Adaptability is determined by the Transition period of the test. If you compare just the transition part of the rhythmographic strip of a well-trained and an unfit person you can see how the two curves are different. The basic rule is that the steeper and the deeper the transitional curve the higher the adaptability level.

The functional capacity and adaptability levels do not directly depend on each other. A person with low ability to adapt to physical loads may still be able to efficiently manage stress in general. This combination would correspond to a low level of adaptability and a high level of wellness. However, in the majority of cases these two aspects of fitness show significant correlation, and higher levels of adaptability correspond to higher functional capacity levels, indicting higher fitness overall.

If a client is not at his or her top performance level, an effective, well-designed exercise program with a personal trainer will result in a noticeable increase in the level of adaptability, and, if combined with the healthy lifestyle, in improved wellness level.

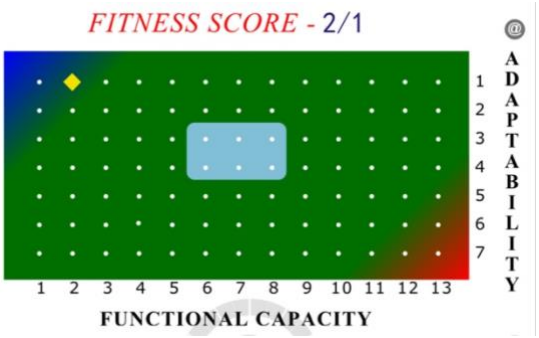
The fitness chart shows 13 levels of functional capacity on the horizontal axis, #1 being the highest and #13 being the lowest possible level. There are 7 levels of Adaptability, which are displayed on the vertical axis; with #1 is the highest level and 7 being the lowest possible level.

The chart contains three distinct zones selected with different colors:

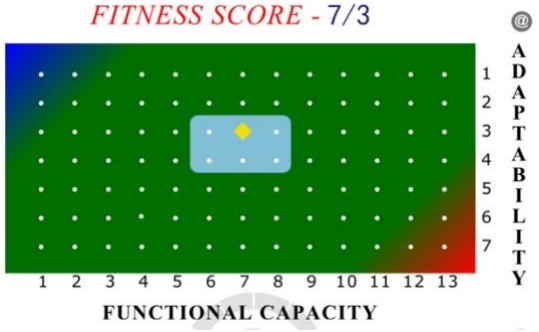
the dark blue zone in the top left corner corresponds to athletic fitness levels; the light blue zone in the middle of the chart reflects average values of fitness in the general population, and the red zone in the bottom right hand corner represents very poor fitness levels that are below normal.

Your client's fitness score is marked with the yellow dot. For example, the figure on the right shows a fitness score of a regularly exercising person. His wellness level of 6 is average among the general population. However, his adaptability level of 2 is above the average closer to athletic levels.

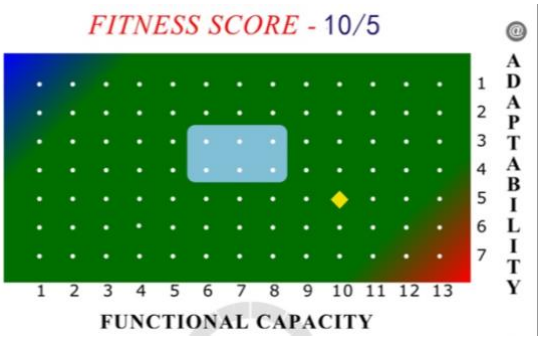
INTERPRETING TEST RESULTS



The test results are displayed on the screen so that you and your client can view his or her fitness score. However it is important that interpretation of the results is performed only by fitness professional. The results should be interpreted depending on the client's base fitness level, his or her age group and health condition. The same fitness score can indicate an improvement for one person and be a sign of overtraining for another individual. Individual clients should not change the training program based on the score alone, but should always consult with their personal trainer or exercise physiologist. Only a fitness specialist would be able to decide whether the training program should or should not be altered and choose an optimal solution for improving the client's fitness.



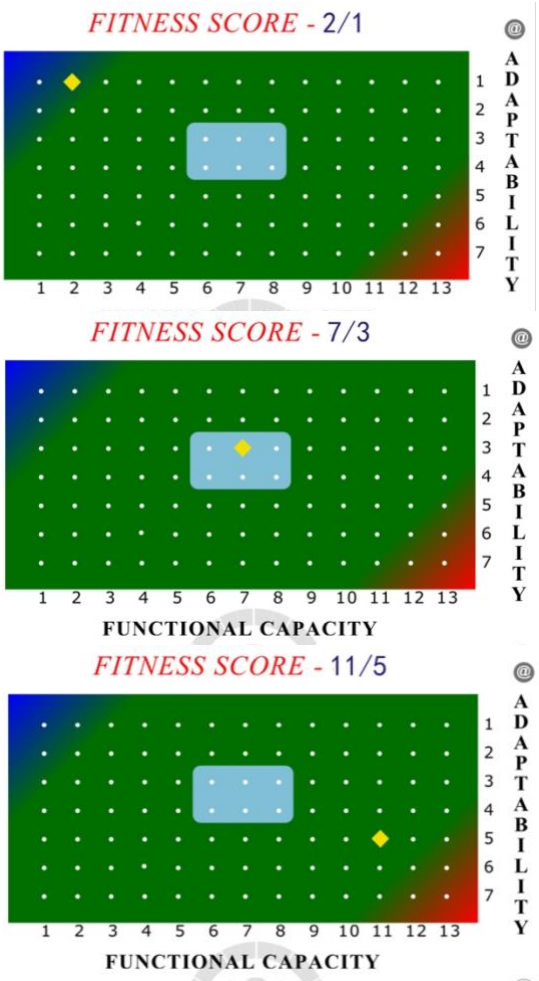
+ WARNING!



If the fitness score is at the lowest levels of wellness and adaptability (within the red zone), this is a warning sign and needs immediate attention. The client should not exercise on the day when such a result is detected and is advised to consult a fitness or health care professional before engaging into any physical activity.

Detecting over training and under training

The fitness assessment with Fitness Score device can detect any of these conditions that adversely affect the client's performance and fitness level. In both overtrained and undertrained persons see the fitness score is significantly reduced and are shifted towards the bottom right-hand corner as shown on the pictures below. THE MARKERS OF OVERTRAINING At the early stages overtraining is typically marked by a reduction of the wellness level with the retention of normal adaptability level. At the exhaustion stage the reduction of the wellness level is usually accompanied by a significant reduction in adaptability. The figures on the right show an athlete's response to overtraining. You can compare his fitness scores at his normal state, at the early stage of overtraining and at the state of exhaustion.

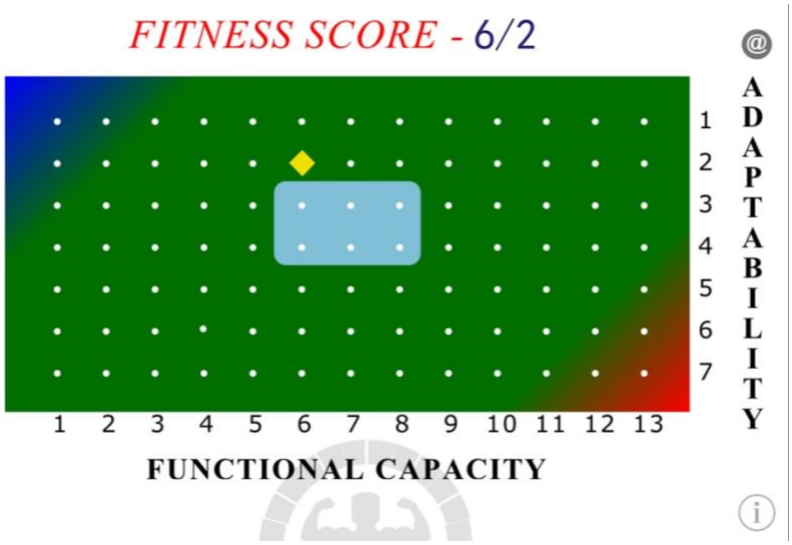


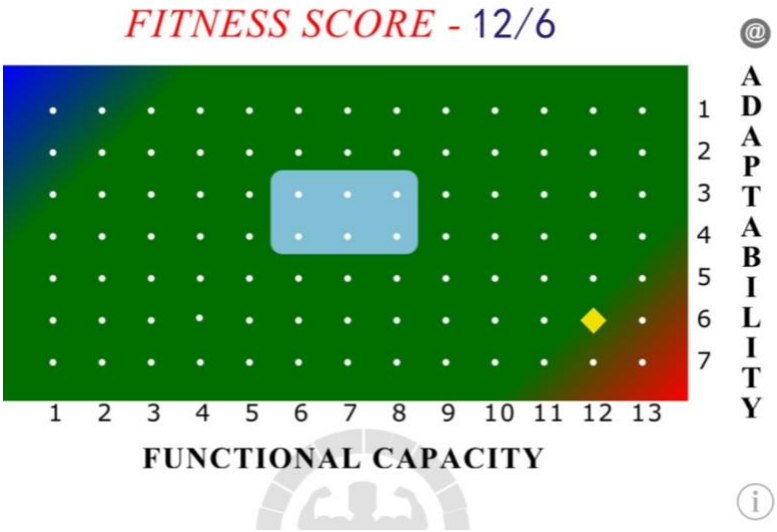
+ NOTICE:

The test results should be interpreted by a fitness professional only who is qualified to make a conclusion whether the test detected overtraining or under training.

Detecting effect of other factors

A reduced fitness score can also reflect a client's response to other common factors such as stress at work or in other aspects of life, and even to increased alcohol or coffee consumption. Compare the fitness results of the same person before and after alcohol consumption:





Stress&Wellness application

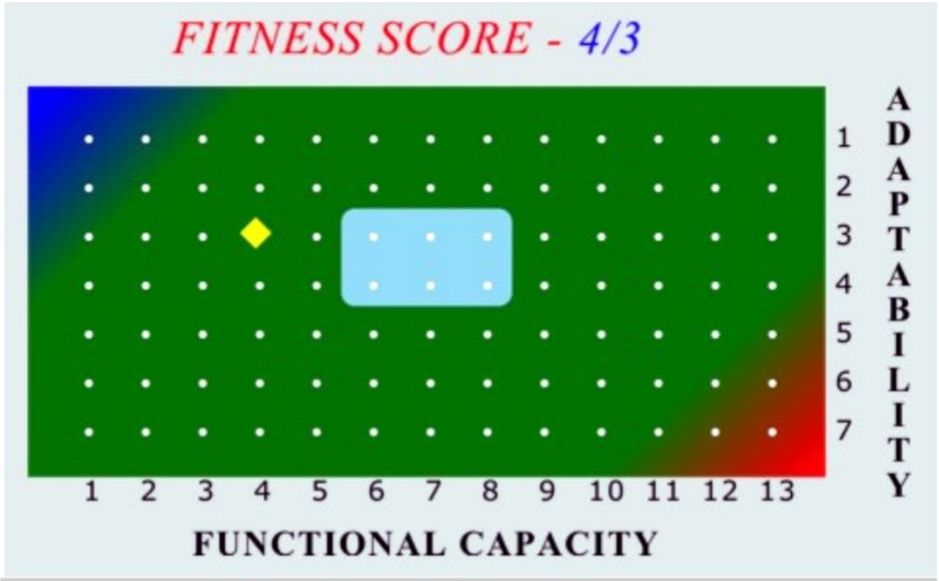
Please use the following link to view and download or open **stress&wellness** application

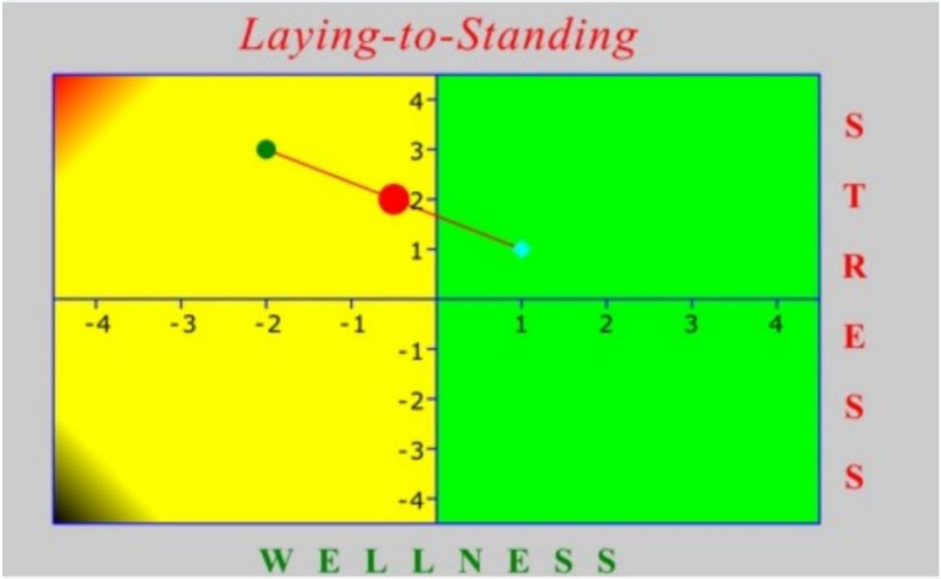
Stress&Wellness
http://www.appannie.com/apps/ios/app/stress-wellness/

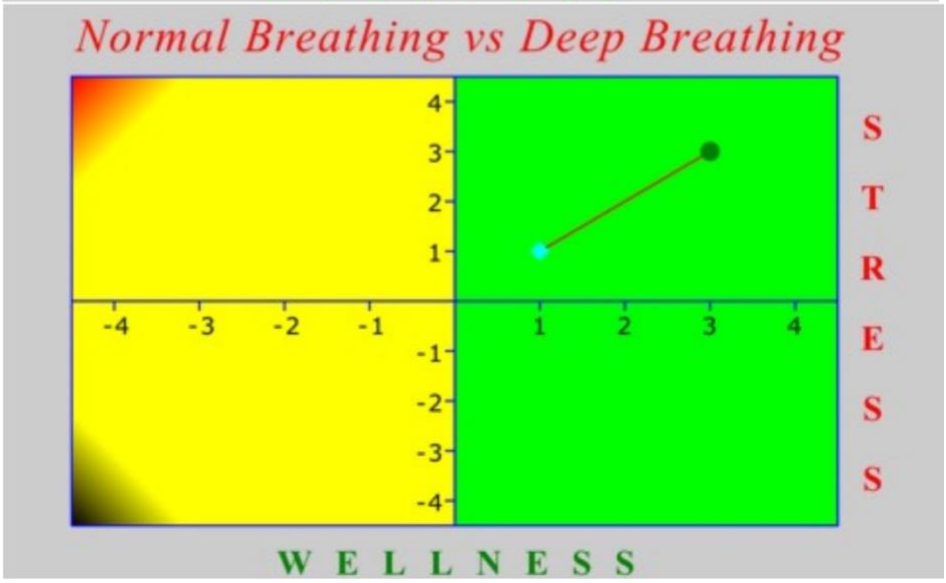
STRESS AND WELLNESS ASSESSMENT

This test is based on analysis of *Heart Rate Variability* during combined protocol of Supine, Upright and Sitting positions with Deep Breathing. After the first part of this protocol – changes from Supine to Upright position-- Fitness Score and current stress and wellness levels are assessed. In some cases (during transition from supine to upright) it is also possible to see overstimulation of adrenals or the individual's psychological markers such as introversion or extraversion.
In addition, the test can recognize a Vagus nerve dysfunction which can be related to a gastrointestinal system dysfunction and sometimes to brain deregulations. **NOTE: Test interpretation is not meant to diagnose, treat or cure any medical or medically-related problems. There is mostly physiological issues.**

The Second part of this protocol – analysis of changes between Normal Breathing (Supine position) and Deep Breathing (Sitting position) - can recognize the reserve of Autonomic function and ability to reduce Stress level. You will see screens of the test results as follow:


FITNESS SCORE - 4/3
1 2 3 4 5 6 7
ADAPTABILITY
1 2 3 4 5 6 7 8 9 10 11 12 13
FUNCTIONAL CAPACITY


Laying-to-Standing
4 3 2 1
-4 -3 -2 -1 1 2 3 4
-1 -2 -3 -4
STRESS
WELLNESS


Normal Breathing vs Deep Breathing
4 3 2 1
-4 -3 -2 -1 1 2 3 4
-1 -2 -3 -4
STRESS
WELLNESS

Heart Rate Measuring Devices:

• POLAR H7 Bluetooth SMART (BLE) belt or 60beat Bluetooth SMART (BLE) belt around the chest - for iPhone 4S and higher models as well as iPod 4-th generation or higher and iPad mini.

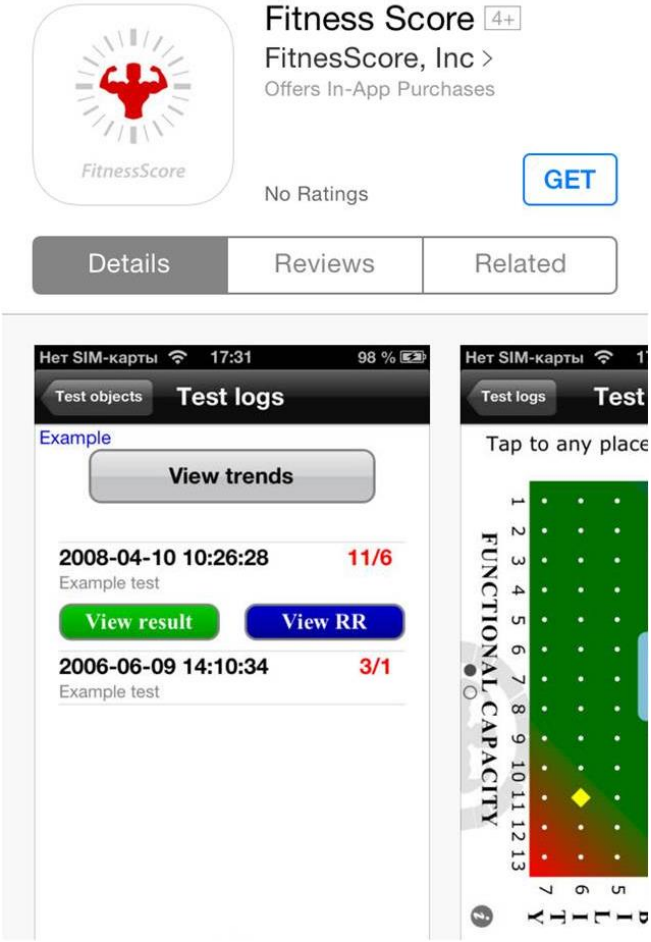
FITNESS SCORE INSTRUCTION

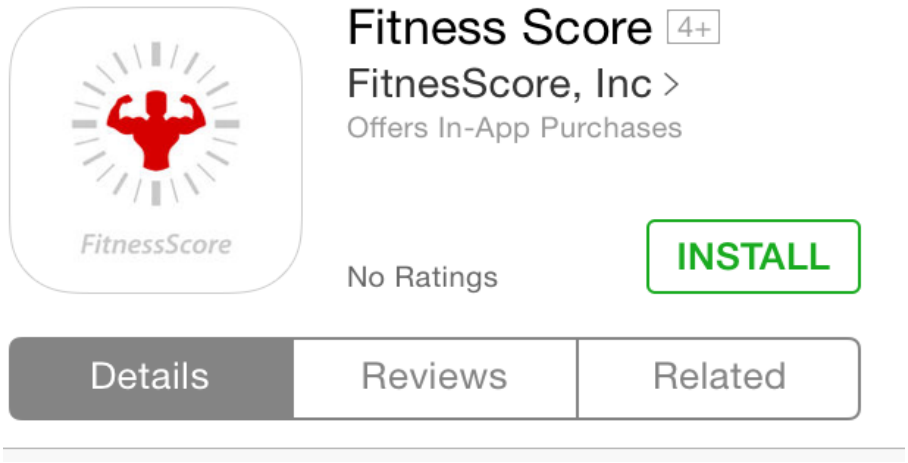
Fitness Score can be installed on iPod touch 4th generations and higher, iPhone 4S and higher, iPad Mini and iPad Air.

Please use the following link to view and download or open Fitness Score application

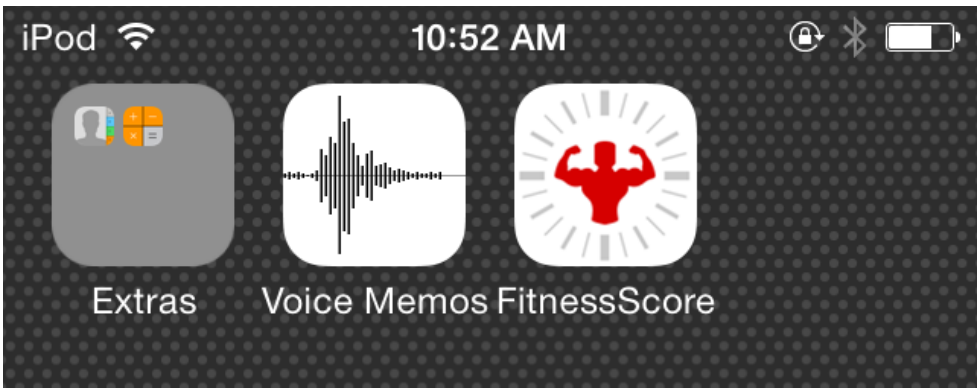
https://itunes.apple.com/us/app/fitness-score/id506605481?mt=8

The View in iTunes

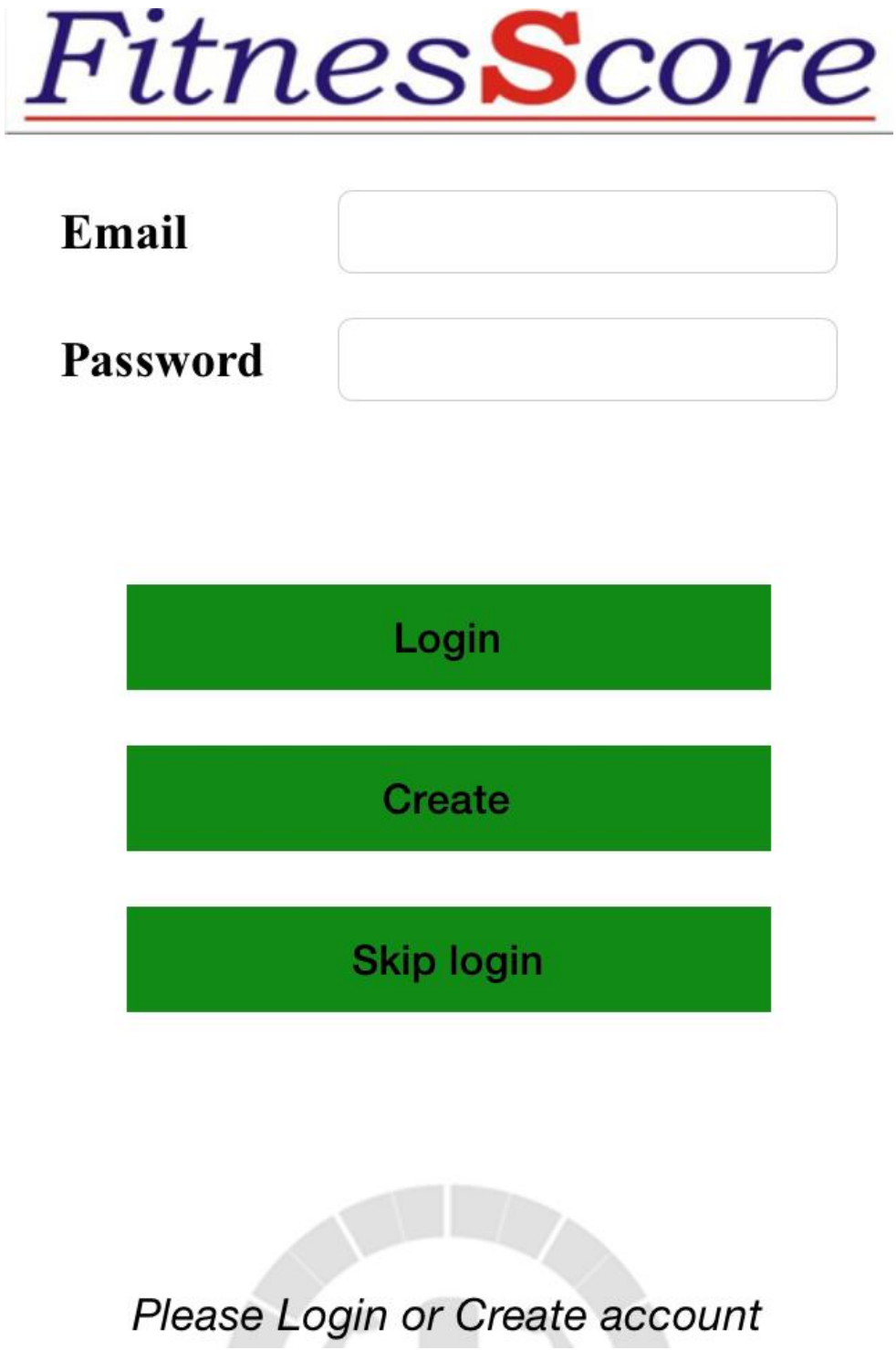

Fitness Score
4+
FitnesScore, Inc >
Offers In-App Purchases
No Ratings
GET
Details
Reviews
Related
Нет SIM-карты
17:31
98 %
Test objects
Test logs
Example
View trends
2008-04-10 10:26:28
11/6
Example test
View result
View RR
2006-06-09 14:10:34
3/1
Example test
Нет SIM-карты
Test logs
Test
Tap to any place
FUNCTIONAL CAPACITY
1 2 3 4 5 6 7 8 9 10 11 12 13



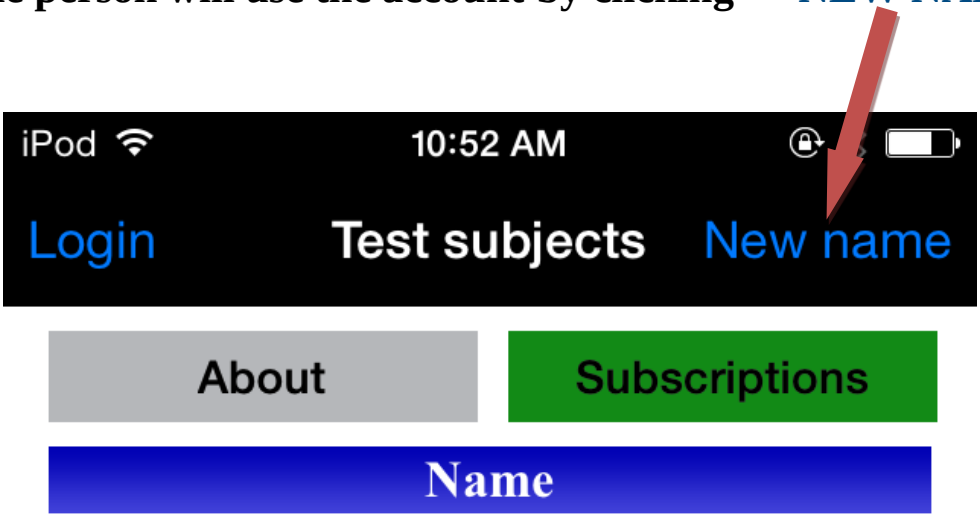
The view of the FitnessScore App on iPod menu



Please create an account to login; although, you can skip login.



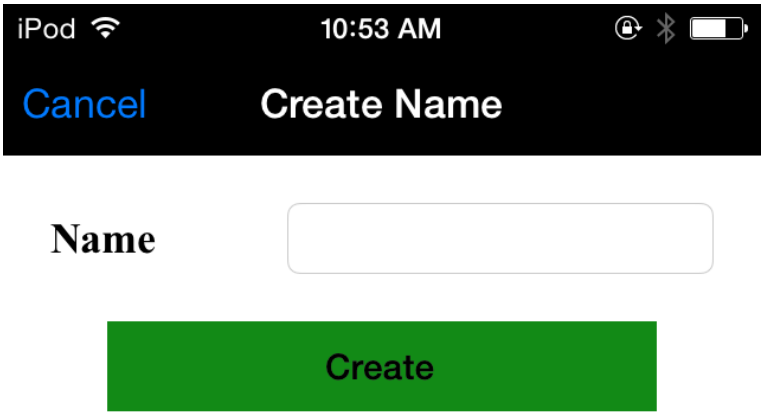
Create a user name in database for each application user if more than one person will use the account by clicking NEW NAME



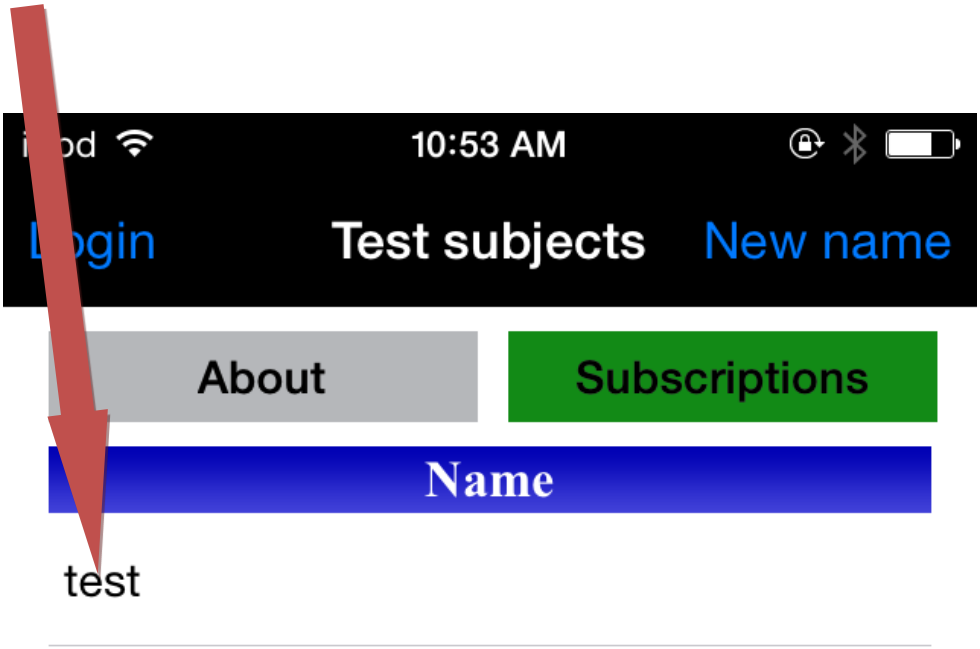
To START measurement:

- **Create new name in your data base by clicking NEW NAME.**
- **HIGHLIGHT new name.**
- **Click NEW TEST.**
- **Place POLAR H7 belt or 60beat Bluetooth SMART belt around the chest.**
- **Tap START TEST.**
- ***NOTE: First 100 tests are free***

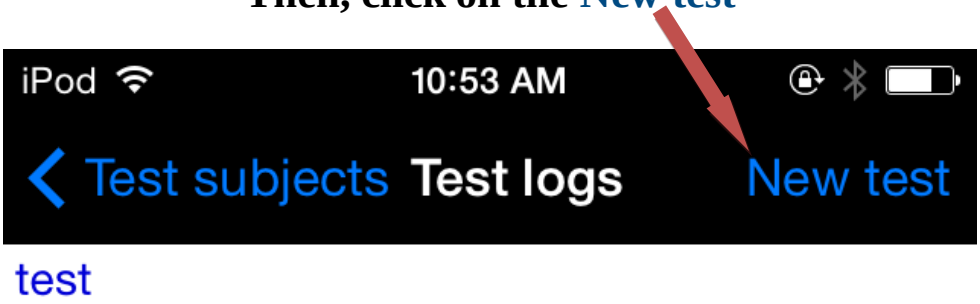
Type the name on the keyboard and press Create



To start a test for specific user (for example test) click on user's name (test)



Then, click on the New test



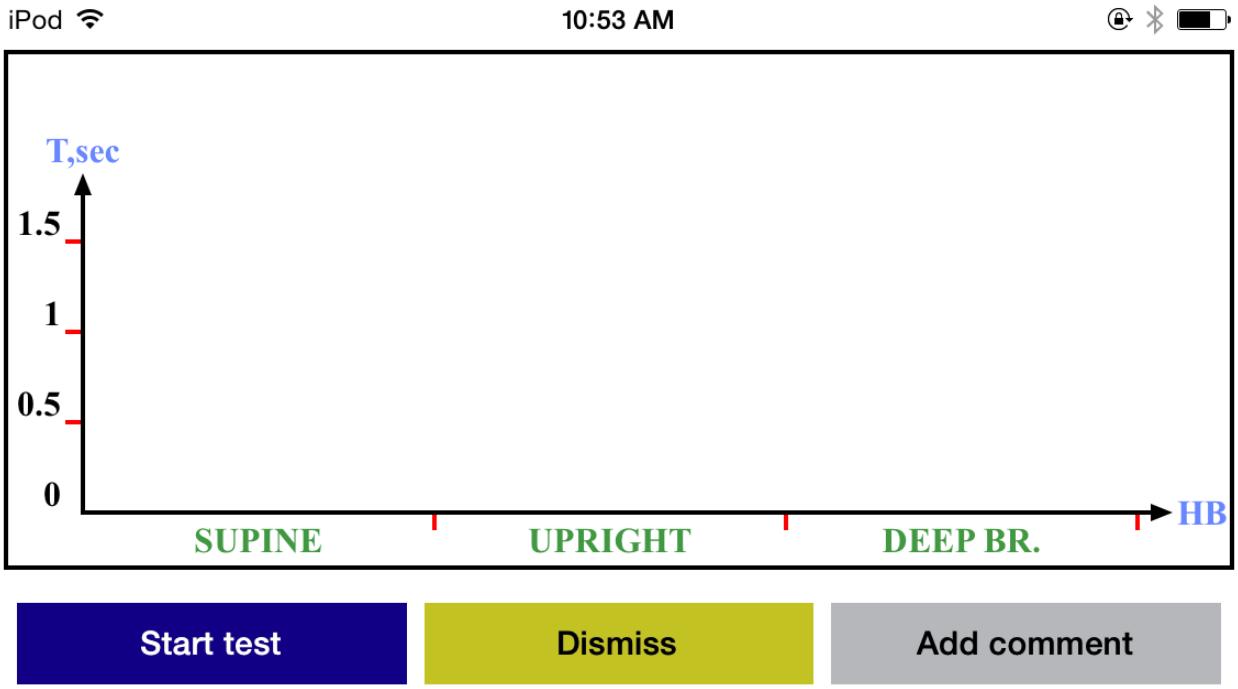
The Fitness Score uses 2 tests for data analysis: Orthostatic and Deep Breathing.

Follow 5 steps for conducting the Orthostatic and Deep Breathing tests

1. Wear the Polar Belt H7 or H6 (see instruction how to wear and to maintain Polar belts H7&H6 pages 16-18).

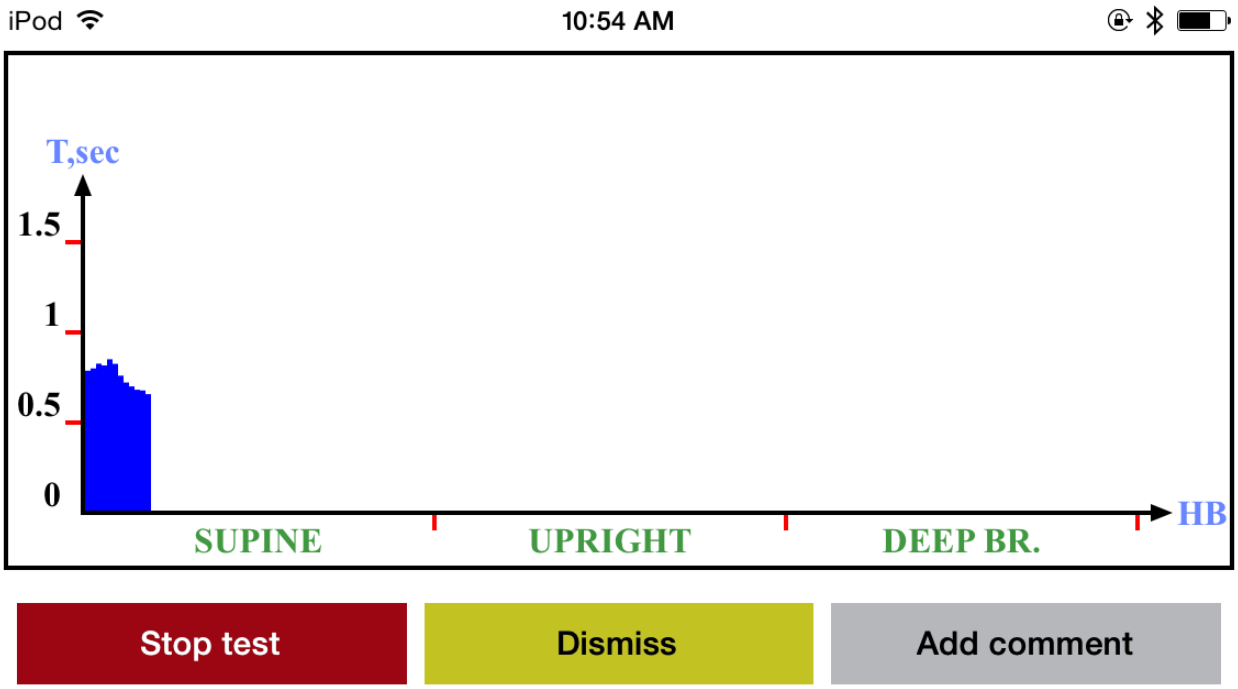
2. Press the Start test button to start the test.

If you need to restart the test press Stop test
If you need to stop the test and return to the current user account press Dismiss
To add notes or comments press Add comments

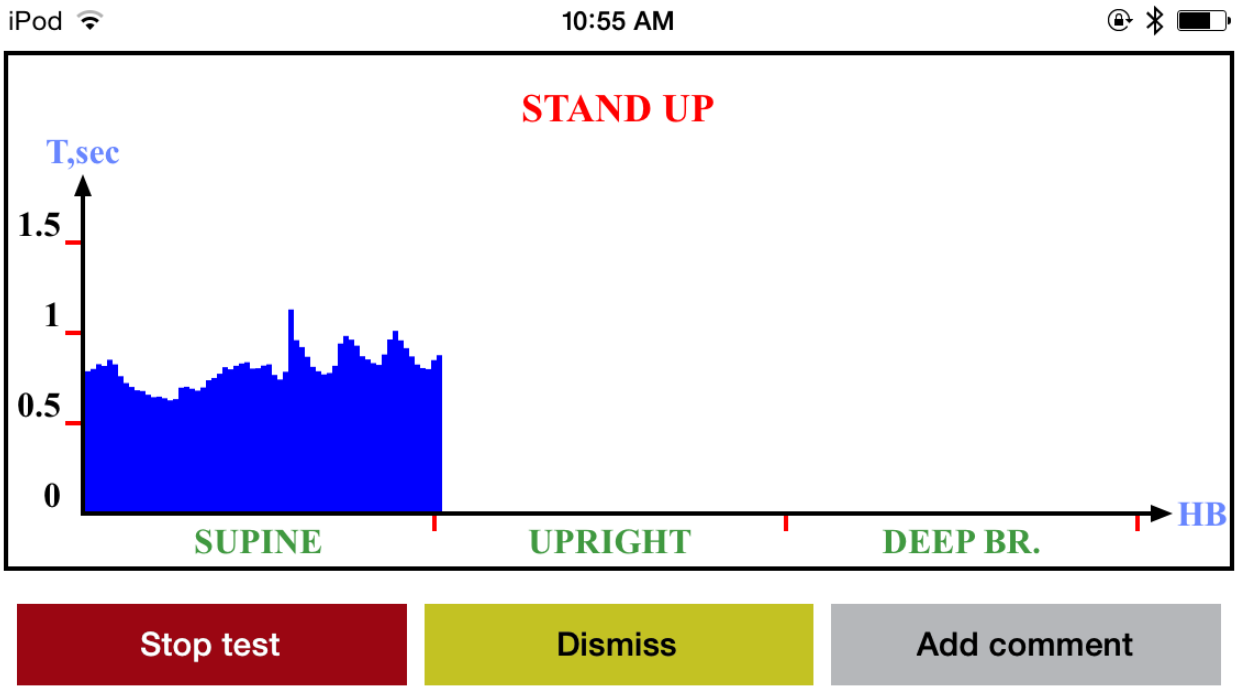


Please highlight by clicking on Polar H7 belt

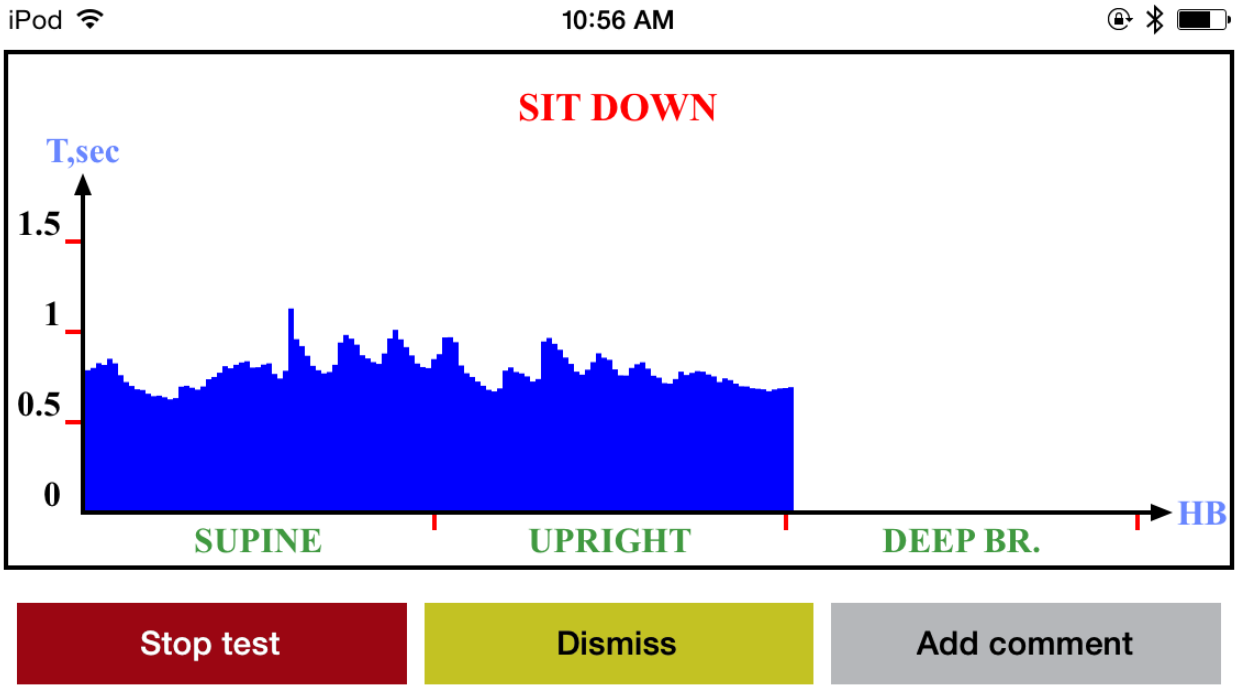
3. Lay down and relax. Your body should be as relaxed as possible.

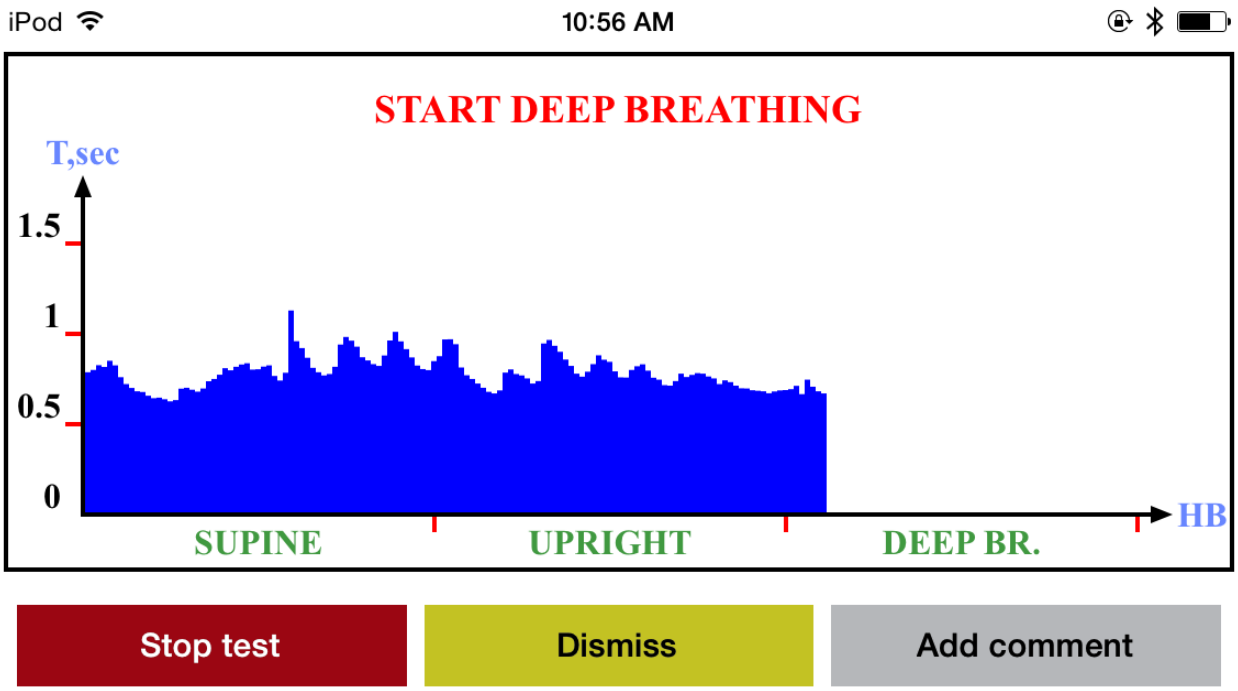


4. Stand up and stay standing

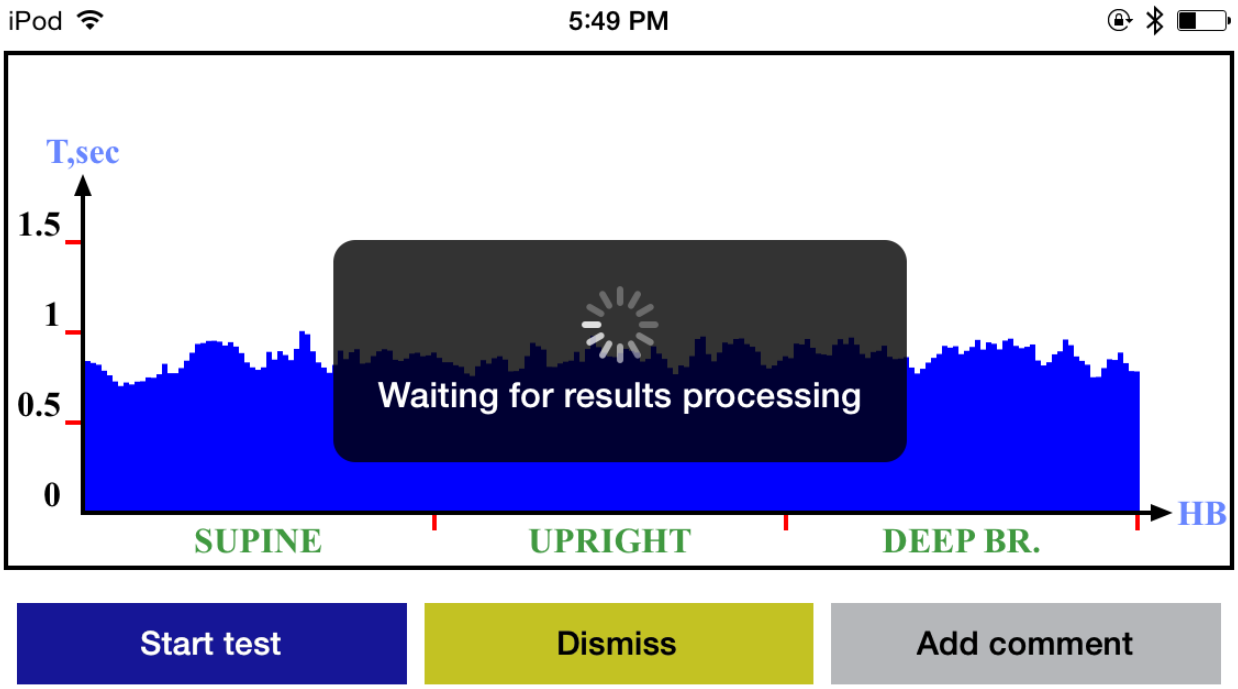


5. Sit down and relax .Your body should be as relaxed as possible. Inhale and exhale deeply and slowly.



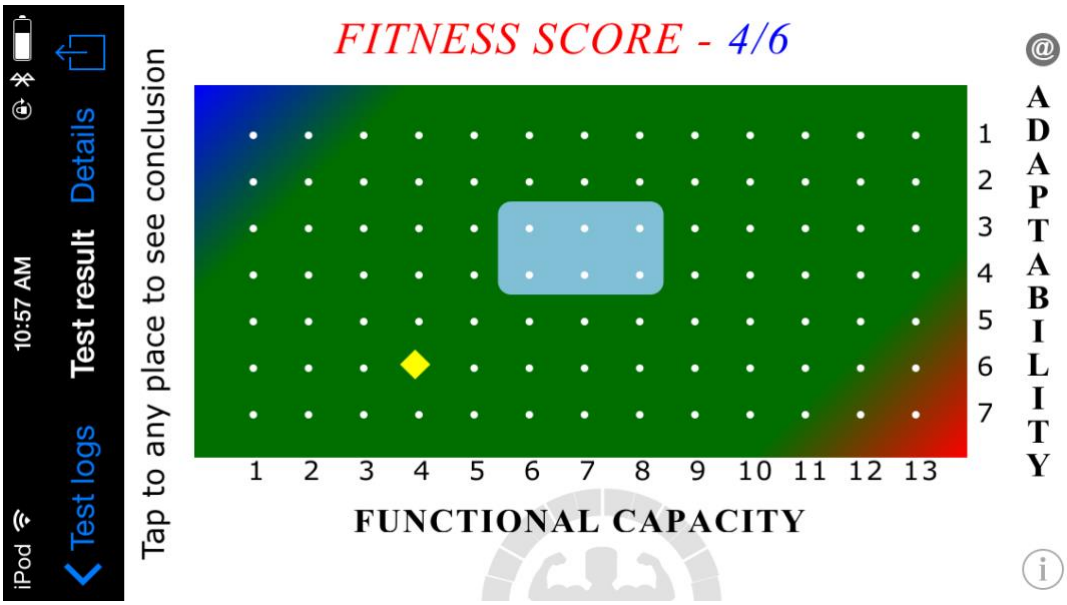


Please wait for the results of the finished test.

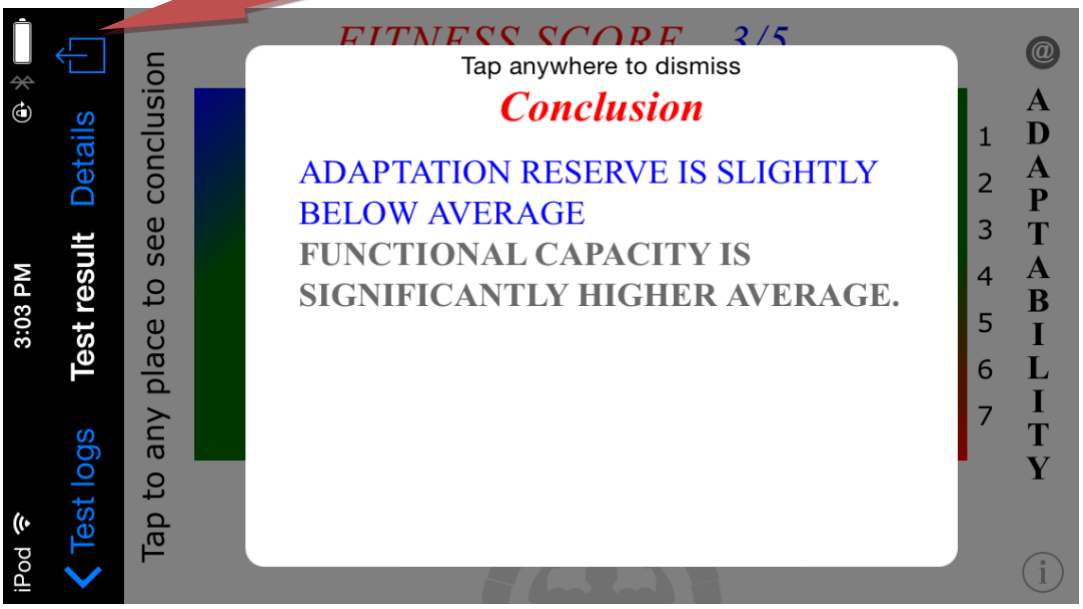


The results will be processed and appear. If the server is busy it takes sometimes for the results to be seen. Close and reopen application after cople hours or so to see the resuts.

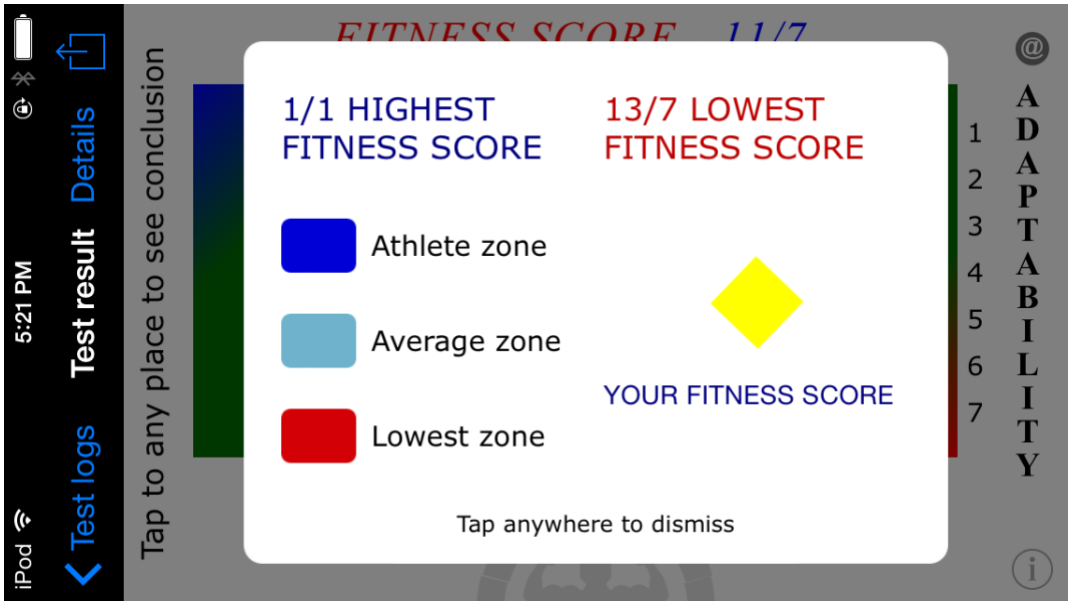
The view of the results



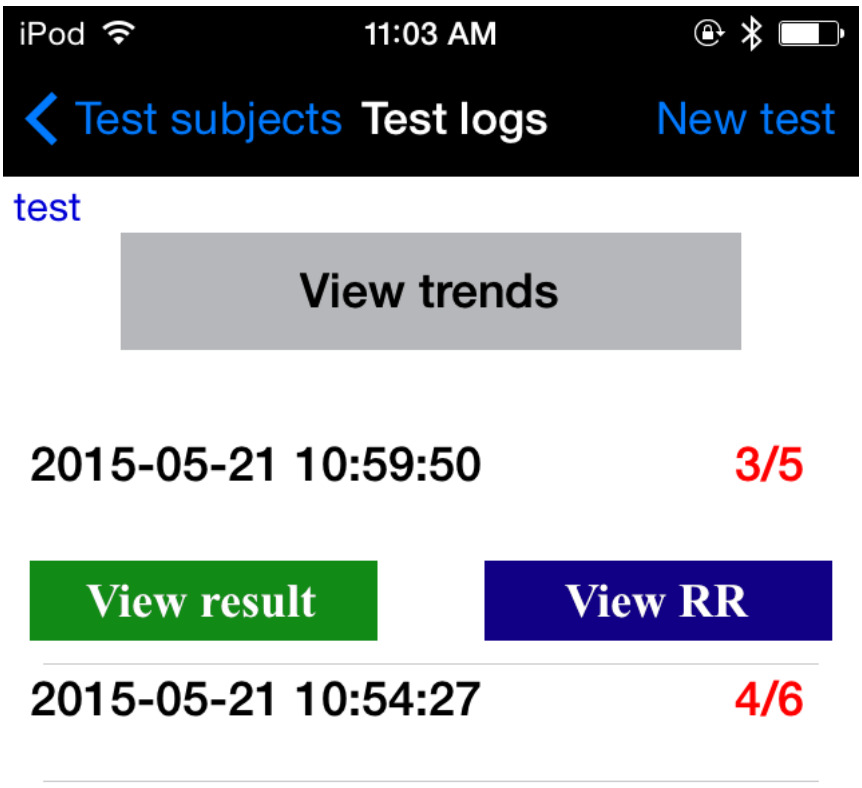
To print the results press on the symbol



To see a legend of the Fitness chart press on the symbol

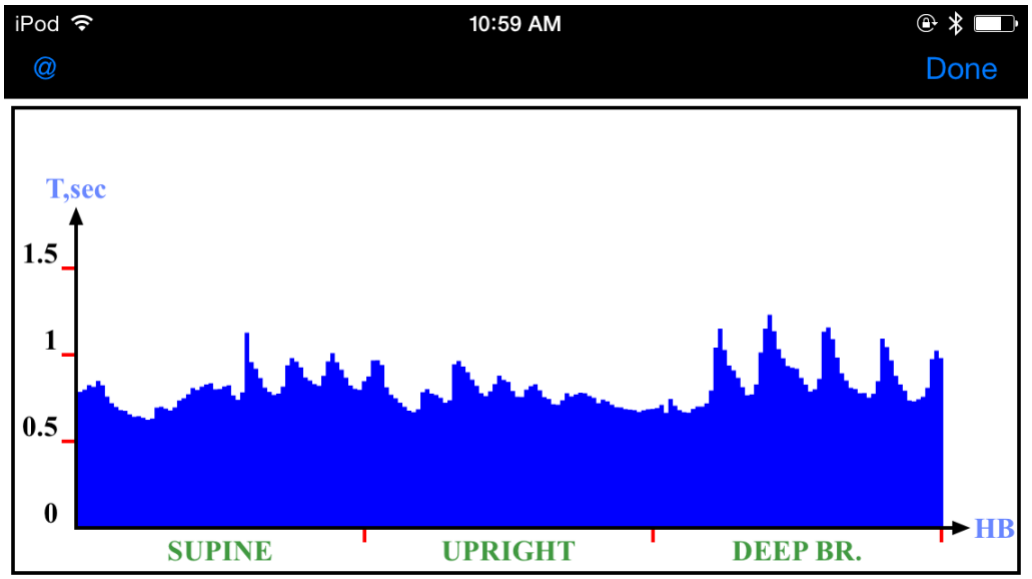


Click on the user name to see user's trends, results and RR. View trends will be available after more than one test.



The View of the RR

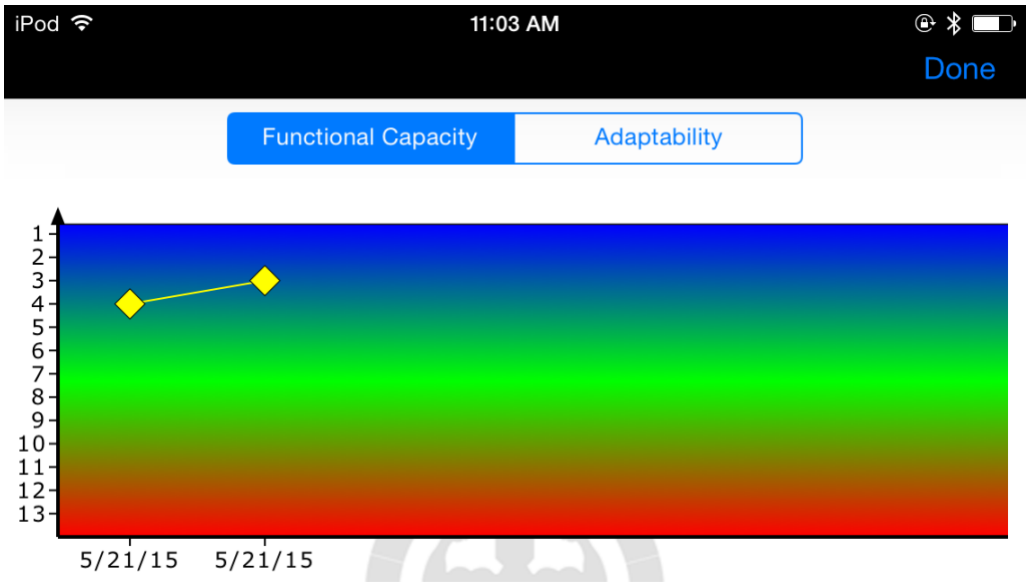
Done to go back and press @ to mail



The View of the trends

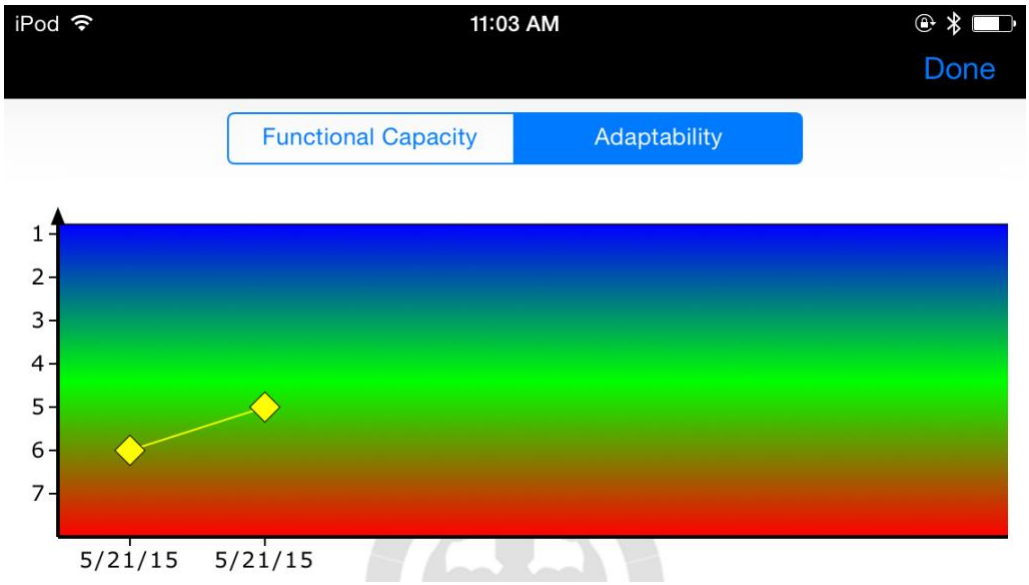
Functional Capacity trend

To go back to the user's trends, results and RR press Done

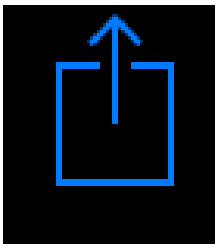


Adaptability Capacity trend

To see Adaptability Capacity trend press and hold Adaptability



Comand Symbols



PRINT

EMAIL

DATABASE

LEGEND

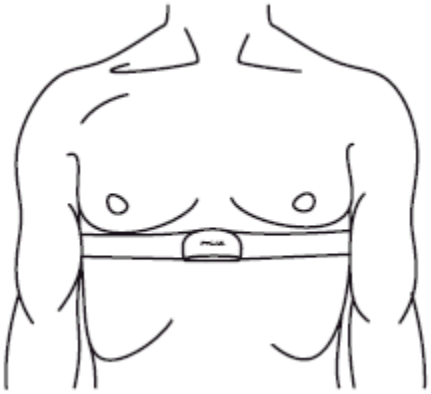
Where to buy and how to wear Polar Belts H7 or H6

Follow the links to buy Belt H7/H6

http://fitnesscore.net/node/12

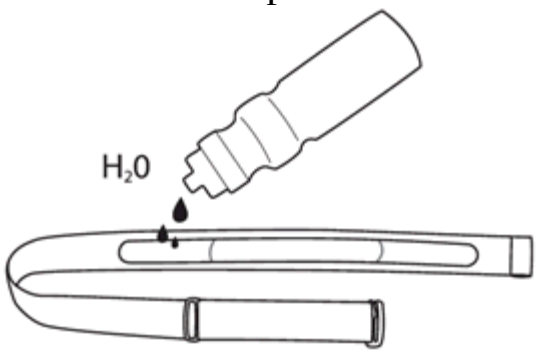
http://www.nerveexpress.com/node/12

Polar H7 and H6 heart rate sensors have two parts: the chest strap and the connector. The heart rate sensor is worn around your chest, just below chest muscles.

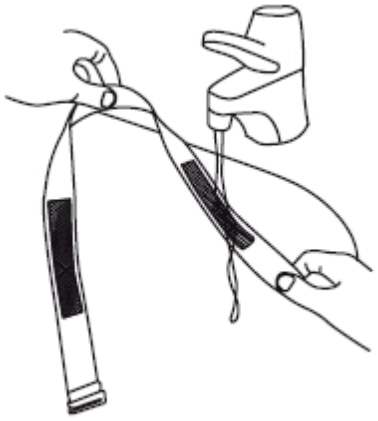


Wear the heart rate sensor

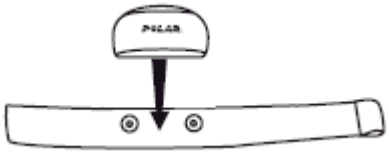
1a. Moisten the plastic electrode areas on the reverse side of the strap.



1b. If the strap has textile electrodes, wet them under running water.



2. Attach the connector to the strap. Adjust the strap length to fit tightly but comfortably around your chest.



3. Tie the strap around your chest, just below the chest muscles, and attach the hook to the other end of the strap.

4. To ensure good heart rate signal detection, check that the moist electrode areas are firmly against your skin and that the Polar logo of the connector is in a central and upright position.

Polar Belt Maintenance

1. Detach the connector from the strap after every use. Dry the connector with a soft towel. Clean the connector with a mild soap and water solution when needed. Never use alcohol or any abrasive material (steel, wool or cleaning chemicals). Never put the connector in a washing machine or dryer.

2. Wash the strap regularly. Dirt impairs the elasticity and functioning of the heart rate sensor. **Rinse the strap under running water after every** use and hang to dry. Clean the strap gently with mild soap and water solution when needed. Do not use moisturizing soaps as they can leave residue on the strap. Do not soak, iron, dry clean or bleach the strap. Do not stretch the strap or sharply bend the electrode areas. Rough handling may damage the electrodes.

3. Dry and store the strap and connector separately to maximize the heart rate sensor battery lifetime.