



angioCode

AngioCode-301

Health Tracker

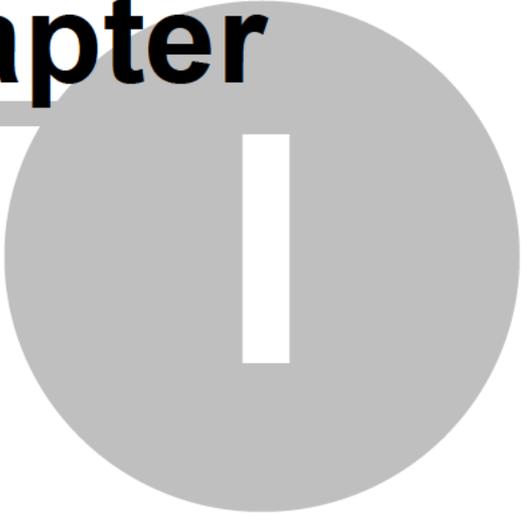
Working with a Smartphone or Tablet



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Chapter



I

1 Introduction

This section contains introductory information about the **AngioCode** application and its use with the **AngioCode-301** device.

1.1 About the application

Application **AngioCode** application is designed to control the **AngioCode-301** device. With it, you can:

- set up the device
- perform the test
- view the results of the current and previous tests
- save or delete test results
- get access to the cloud storage of results
- view trends of your results for the selected period of time

The **AngioCode-301** device itself is intended for independent monitoring of the state of the human body, in particular - the assessment of psycho-emotional balance, reserves of the cardiovascular system. The results are stored on a personal computer and can be transferred further for accumulation and analysis to the cloud storage.

Warning! AngioCode-301 is not a medical device! This is a device for monitoring physiological parameters at home. Any data obtained using the device is for informational purposes only and cannot be used for diagnosis, treatment or therapy. For all questions about the operation of the device, you can contact [Customer service https://angiocode.com/support](https://angiocode.com/support)

1.2 Safety precautions

Read the manual before using the device.

[Safety warning](#)
[Precautions](#)

1.2.1 Safety warning

- **Keep the device out of the reach of children and pets.** To avoid accidents, keep the device and accessories out of the reach of children and pets.
- **Do not use the device in a potentially explosive or flammable environment.** Keep the device switched off at petrol stations and near containers with flammable liquids. Do not store or transport flammable liquids, gases or explosives together with the device, its components and accessories.
- **Have the device repaired only by qualified personnel.** Do not disassemble it yourself.

1.2.2 Precautions

- Before using the device, read the user manual.
- Do not expose the device to extreme temperatures (below 0 °C or above 45 °C). Too high or too low temperature will reduce the capacity and shorten the battery life.
- Do not use defective chargers.
- Do not squeeze the device hard in your hand, press the button lightly.

- Avoid getting the device wet. Moisture can cause serious damage to the device. Moisture entering the device will void the manufacturer's warranty.
- Do not use or store the device in contaminated areas. This can cause damage to moving parts of the device and reduce diagnostic quality.
- External shocks and rough handling can cause serious damage to the electronics.
- The action of the electromagnetic field can damage the device. Avoid exposing the device to strong electromagnetic fields.
- Light sources, electronic and household appliances, and wireless phones can interfere with the operation of the device.
- If you bring the package with the device from the cold into a warm room, leave it warm for two hours without opening it. Otherwise, moisture condensation can cause the device to malfunction.
- Handle the device with care, the display is made of glass and can be broken if handled carelessly.
- Do not disconnect the device from the computer, when updating the firmware. Attempting to disrupt the loading process may cause the device to malfunction that can only be repaired by a service center.

1.3 Developer information

AlmaCode

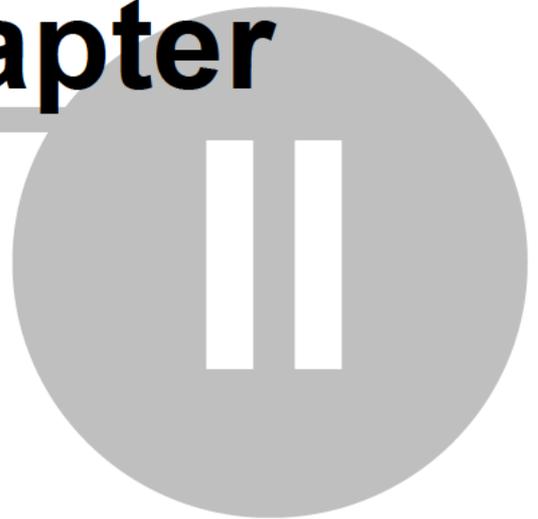
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Chapter



2 Conducting a test

Some rules should be followed when conducting the test.

2.1 Preparation for the test

The parameters of the cardiovascular system sensitively respond to the state of the body and its nervous system. Try to exclude factors that distort the results before conducting the test.

With a healthy lifestyle, exclude at least a day before the test:

- tobacco smoking
- taking vasoactive drugs
- caffeine intake
- alcohol intake
- taking stimulants (“energy drinks”)
- heavy physical activity

If you are prescribed drugs for permanent use, you smoke, or have other permanent addictions, the test will also be indicative. In this case, remember that not you are being tested, but, say, “You and tobacco”. One cigarette right before a vascular checkup can ruin your performance for ten years of unhealthy life.

Rest for at least ten minutes in a warm, darkened, quiet room immediately before the test.

Cold hands can result in a low perfusion index. Warm your hands if necessary.

Dark nail polish may interfere with the operation of the device. If it is not possible to remove the varnish, turn the device 90 degrees so that the sensor light passes along the nail.

2.2 Choosing the time and place of the test

You can perform the test anywhere, anytime. It is enough to remember that time and place affect the results. It is good if you have the opportunity to choose a quiet, warm room without bright lighting. You can take the test in a lying or sitting position, on the right or left hand. Care should be taken to ensure that the hand during the test was located approximately at the level of the heart. This is especially important for the test in a sitting position. The metatarsal and elbow joints should be located stable and motionless, for example, on a table.

Avoid direct sunlight, illumination from a working TV, computer monitor, and other rapidly changing light sources on the device.

You can only compare data obtained in the same way:

- at the same time of day
- in the same body position
- on the same hand

For example, you regularly run three tests a day:

- in the morning before getting up, on the right hand, lying
- before dinner, on the right hand, sitting
- in the evening before going to bed, on the right hand, lying

It will make sense to compare morning with morning, dinner with dinner, evening with evening.

2.3 Behavior during the test

To reduce bias in the test, follow these rules:

- stay in peace
- relax your arms, legs, stomach
- breathe easy

- do not move your hand or finger with the device
- don't talk
- don't laugh
- avoid vibration
- eliminate bright exposure

2.4 Placing the device on the finger

- Fold out the support from the bottom of the device.
- Turn your right hand palm down.
- Hold the device in your left hand with the screen up, the button on the right.
- Insert the index finger of your right hand into the lock.
- Make sure that the sensor is under the pad of your finger. It feels like a small depression.

2.5 Quick start

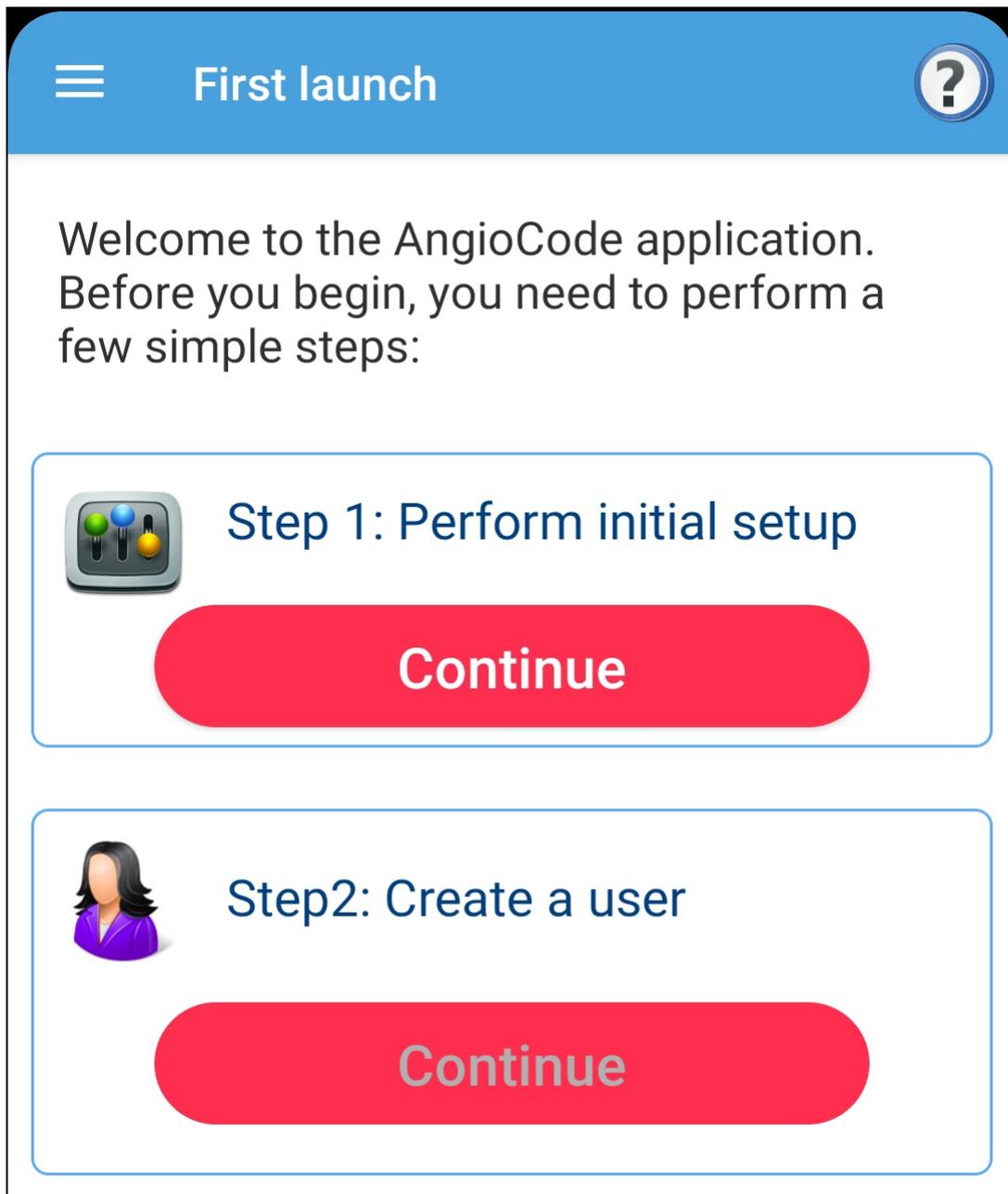
The AngioCode device can be used to run tests and view test results in the following ways:

- Offline. The device is controlled by buttons on its housing. Information is displayed on the built-in display of the device.
- The device can be connected to a personal computer with a Windows operating system. The application for working with the device can be downloaded from the link https://angiocode.com/en_w301. The device is connected to a computer with a USB cable.
- The device can be controlled using a mobile phone or tablet with the Android operating system. The device can communicate with a phone via Bluetooth interface version 4.0 or higher (Bluetooth Low Energy, BLE), as well as via USB interface using an OTG cable. The mobile application is available at the following link https://angiocode.com/en_a301
- Using the device with a mobile device and a computer is a convenient way of working, which opens up all available possibilities to the user.

Updating the firmware of the device, i.e. the program, which is located in the device itself and which actually conducts tests, is possible only when the device is connected to a computer, or when the device is connected to a phone/tablet via USB. After updating the application version, the device may once give information that it is desirable to update the firmware version.

Working with a phone/tablet

1. Install the AngioCode application on your phone from Google Play Market or by link https://angiocode.com/en_a301.
2. Open the application. At the first launch, you will be prompted to check the application settings and create the first user:



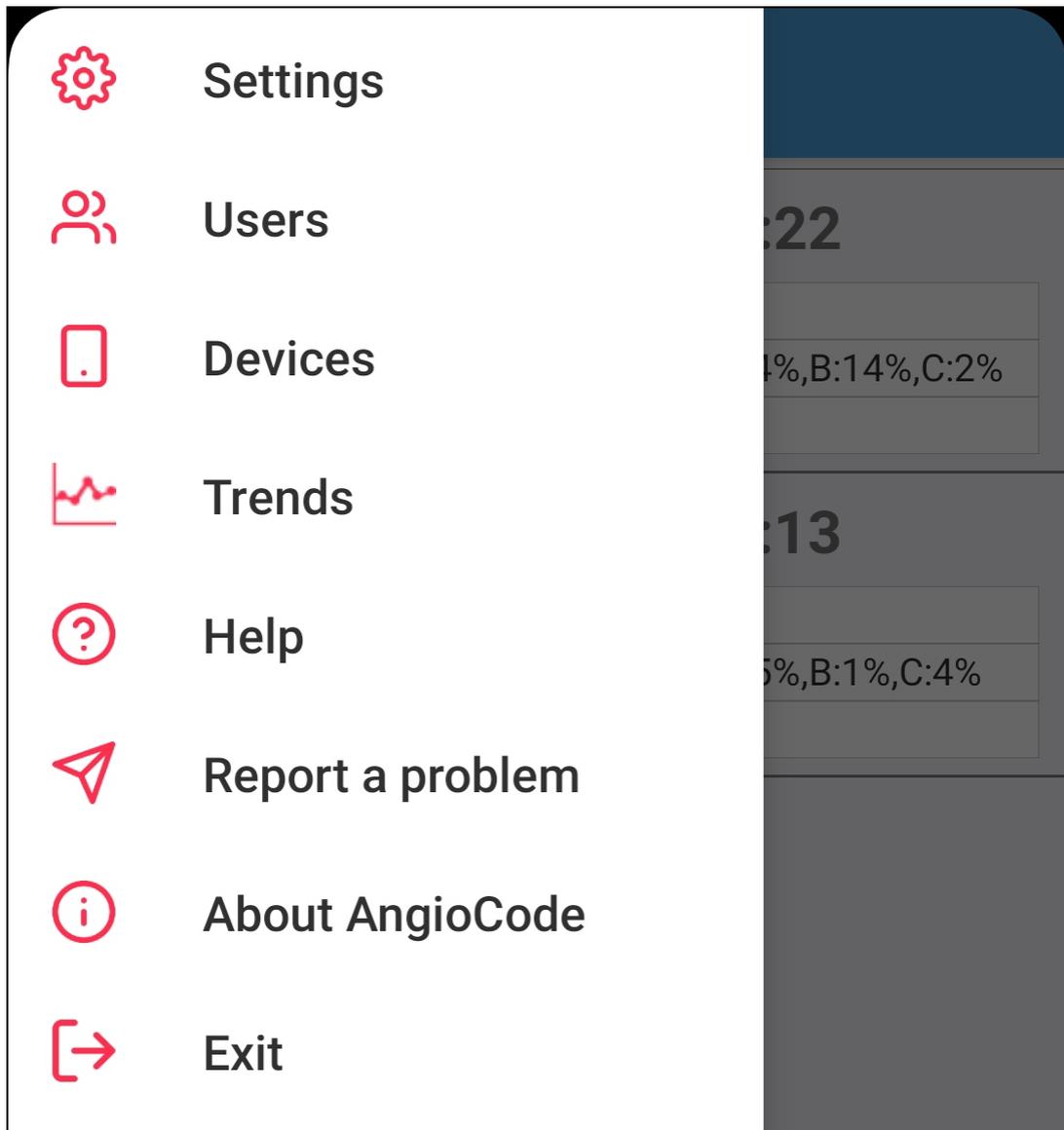
On the [settings screen](#) check that all options are set to the desired values and confirm with the “OK” button at the top of the screen. You can use the default settings for most cases.

After confirming the settings, the “Continue” button under the “Create a user” sign becomes available. Select this button to create a device user and specify his/her data. The user editing page opens, where all fields are empty. Fill in all fields and click “OK” at the top of the screen.

After the user is created, the program returns to the home page of the application. Before at least one test is done, this page will be blank.

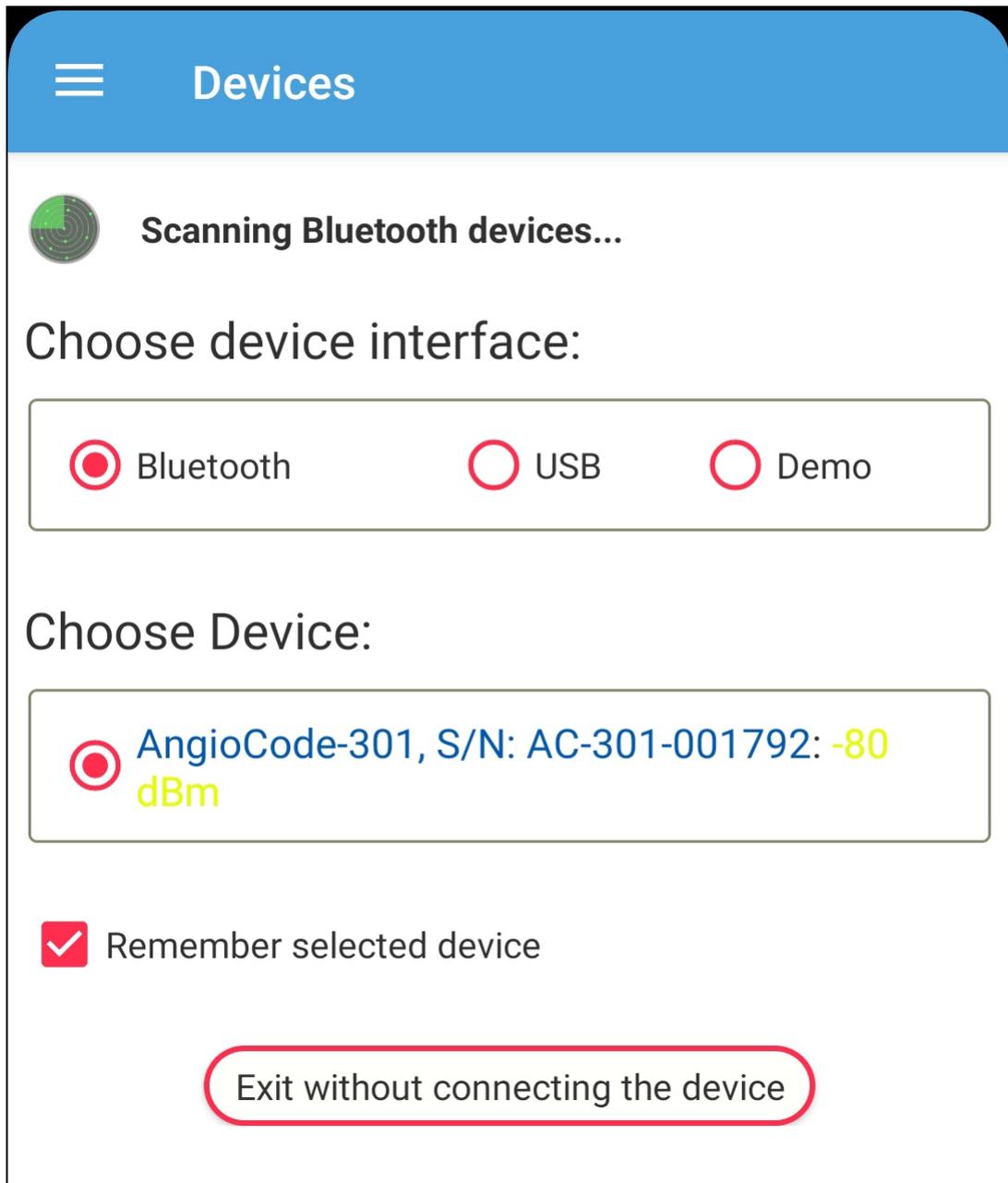
3. Turn on the AngioCode-301. Make sure the battery of the device is not dead.

4. Select “Devices” the item in the application menu:



The device selection screen opens. Tap “Bluetooth”. If Bluetooth is not enabled on your phone, the program will prompt you to enable it. Confirm that you allow the application to enable Bluetooth. If your phone does not support Bluetooth version 4.0 (Android OS version is less than 5.1), a corresponding message will be displayed. It is not possible to operate the device with such phone via the Bluetooth interface.

Shortly, the name of the “AngioCode-301” device will appear in the “Select device” field. This means that the program has detected the device via the Bluetooth interface. Discovery may take some time. Leave the checkbox “Remember the selected device” enabled, and subsequently the program will contact the device automatically:



Confirm your choice with the “OK” button at the top of the screen.

6. Put the device on your finger as indicated in the documentation for the device.
7. Tap the green “Start new test” button at the bottom of the screen. You will be given a series of instructions on how to perform the test. Read these instructions carefully - it is really important to follow them in order for the test results to accurately reflect the state of your body.
8. Wait for the end of the test. Tap the “Results” button at the bottom of the screen. Graphical and textual information is displayed for each test parameter, see chapter [“How to evaluate your test results”](#) device will appear in the “Select device” field.
9. Press the “Back” button on your phone (it’s a phone button, not an application button). The screen will display a list of tests performed, indicating the date and parameter values for each test:

☰ Dow John

December 20, 2021 12:22

HR = 67	SpO2 = 96.8	PI = 2.9
VA = 71	Alp75 = 4.2	CT = A:84%,B:14%,C:2%
%ED = 29	Stress = 125	

December 20, 2021 12:13

HR = 67	SpO2 = 96.8	PI = 4.2
VA = 66	Alp75 = 9.7	CT = A:95%,B:1%,C:4%
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May 20, 2020 14:24

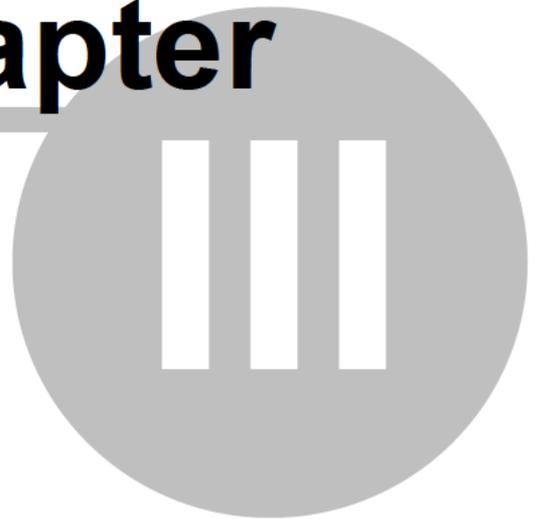
HR = 67	SpO2 = 97.1	PI = N/C
VA = 32	Alp75 = 6.8	CT = A:100%
%ED = N/C	Stress = 260	

+ Start new test

To view the details of a test again, tap it in the list.

See the other chapters in this help document for information about additional features of the application.

Chapter



3 How to evaluate your test results

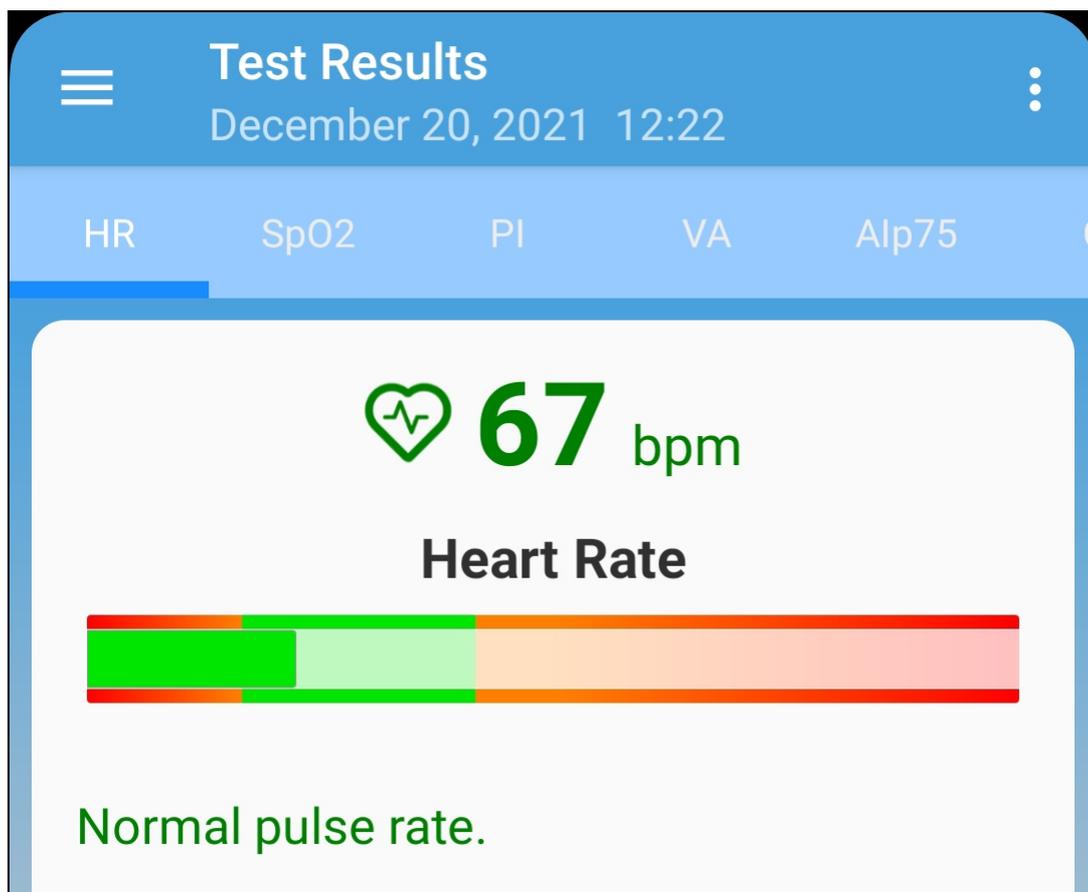
Based on the test results, the device generates scores for the following indicators:

- Pulse rate;
- Saturation of blood hemoglobin with oxygen;
- Perfusion index;
- Vessel age;
- Vascular stiffness;
- Pulse wave type;
- Systole duration;
- Stress level.

When displaying the results for each indicator, the device displays the score numerically and with a triangular arrow pointing to a section of the three-color scale. There are three evaluation options:

- green - good condition
- yellow - satisfactory condition
- red - unsatisfactory condition, if there are consistently negative results for some time, it is recommended to consult a specialist.

3.1 Pulse rate



Pulse rate or the number of heartbeats per minute. The inverse of this value is the pulse wave duration. The device evaluates the duration of each pulse wave, calculates the instantaneous value of the pulse frequency, and determines the average value based on the test results.

This is an important indicator, primarily reflecting the fitness of the body. The higher the resting heart rate, the less trained the body and the cardiovascular system in particular. For those who regularly exercise, the resting heart rate has values in the range of 55-60, which can be assessed as an excellent condition, 60-80 is good, more than 90 is bad.

A more reliable assessment of the fitness of the body can be obtained by conducting load tests.

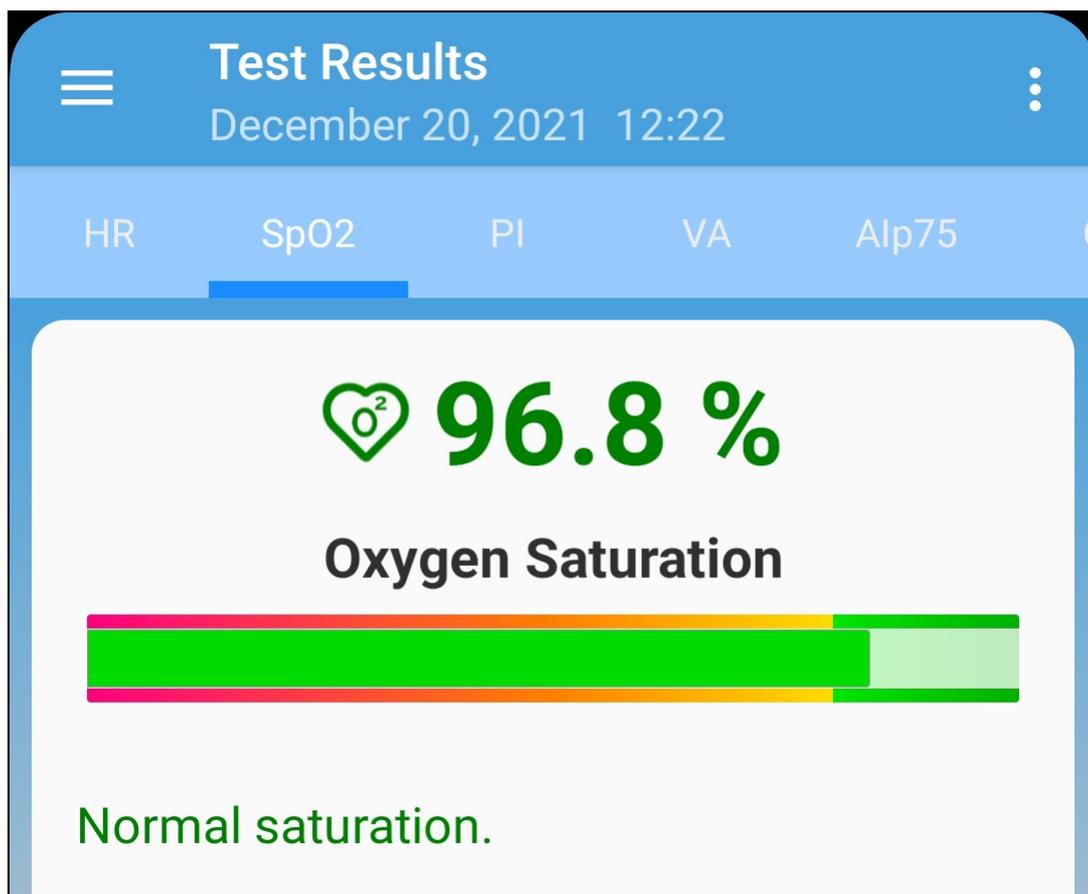
As an option:

1. Determine the pulse rate in a normal resting state.
2. Do 20 squats in 30 seconds.
3. After 3 minutes, reassess heart rate and calculate the difference between the second and first results.

Result:

- good fitness - up to 5 beats;
- satisfactory - 5-10 beats;
- low - more than 10 beats.

3.2 Oxygen saturation



Oxygen, inhaled with atmospheric air, is transferred to the organs with the help of a special carrier protein - hemoglobin, which is contained in red blood cells, erythrocytes. The oxygen level in the blood or the oxygen saturation degree of the blood shows how much hemoglobin in the body is in a state associated with oxygen.

Oxygen saturation - saturation (SpO₂) of blood hemoglobin with oxygen is a vital indicator, the value of which is determined by:

- pumping function of the heart
- ability of the lungs to oxygenate the blood
- state of hemoglobin - oxygen carrier

Normally, almost all hemoglobin is associated with oxygen, while the hemoglobin saturation with oxygen varies in the range from 96% to 99%. A steady decrease in the level of saturation below 95% can be observed with disorders in the respiratory and cardiovascular systems, with severe anemia.

With chronic diseases of the heart and lungs, a decrease in this indicator may indicate an exacerbation of the disease, in such situation, one should seek medical help. A decrease in the level of saturation of hemoglobin with oxygen against the background of a cold, flu, acute respiratory viral infections, pneumonia and other lung diseases may indicate a complicated course of the disease.

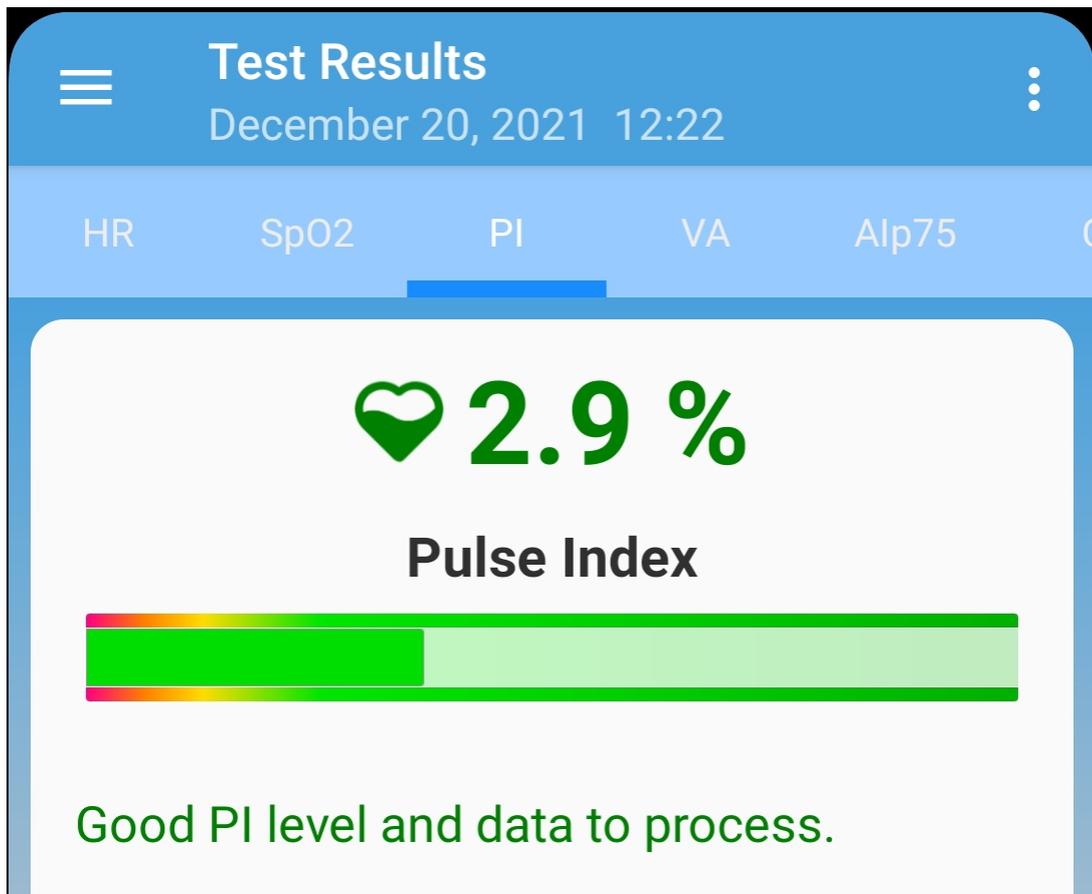
The saturation level indicator is important for people with chronic lung diseases, including chronic bronchitis.

When performing a study, it should be taken into account that a number of factors can lead to an error in assessing the level of oxygen in the blood. Such factors include the presence of a manicure, especially with the use of dark shades of varnish, the movement of hands or trembling of the fingers during the examination, the presence of a strong external light source - solar or artificial, and the close proximity of sources of strong electromagnetic radiation, such as mobile phones. The low temperature in the study room can also lead to errors in the SpO₂ assessment.

There may be slight individual fluctuations in the saturation level. To correctly interpret the score for this indicator, several tests should be performed. This will reveal the individual characteristics of fluctuations in the level of oxygen in the blood, and will help to correctly interpret certain changes in the future.

A sharp decrease in SpO₂ by 3-4% of normal values can be a sign of the development of diseases such as influenza or pneumonia.

3.3 Perfusion index

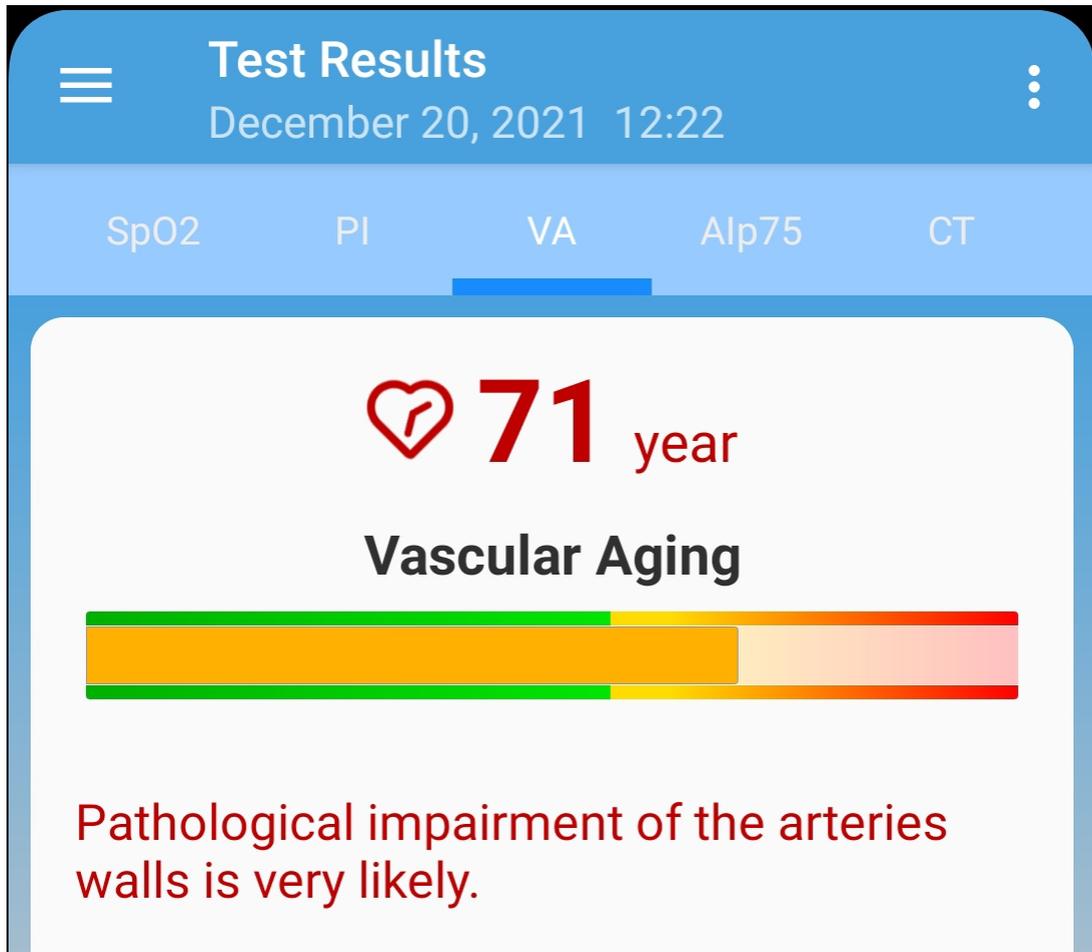


PI (Perfusion Index) - perfusion index, is a technical indicator. It reflects the level of the useful signal available for processing by the device. Values less than 1.0 indicate an insufficient signal level. The reason for this may be cold hands, too dark nail polish, pathology of the arteries. In this case, the test results may be unreliable.

If the filling index is less than 1.0, the device will issue a warning about the possible unreliability of the test results. Depending on the reason for the decrease in the perfusion index, it is possible to recommend:

- warm hands;
- turn the device so that the light of the sensor passes under the nail and not through it;
- change hand.

3.4 Vascular age

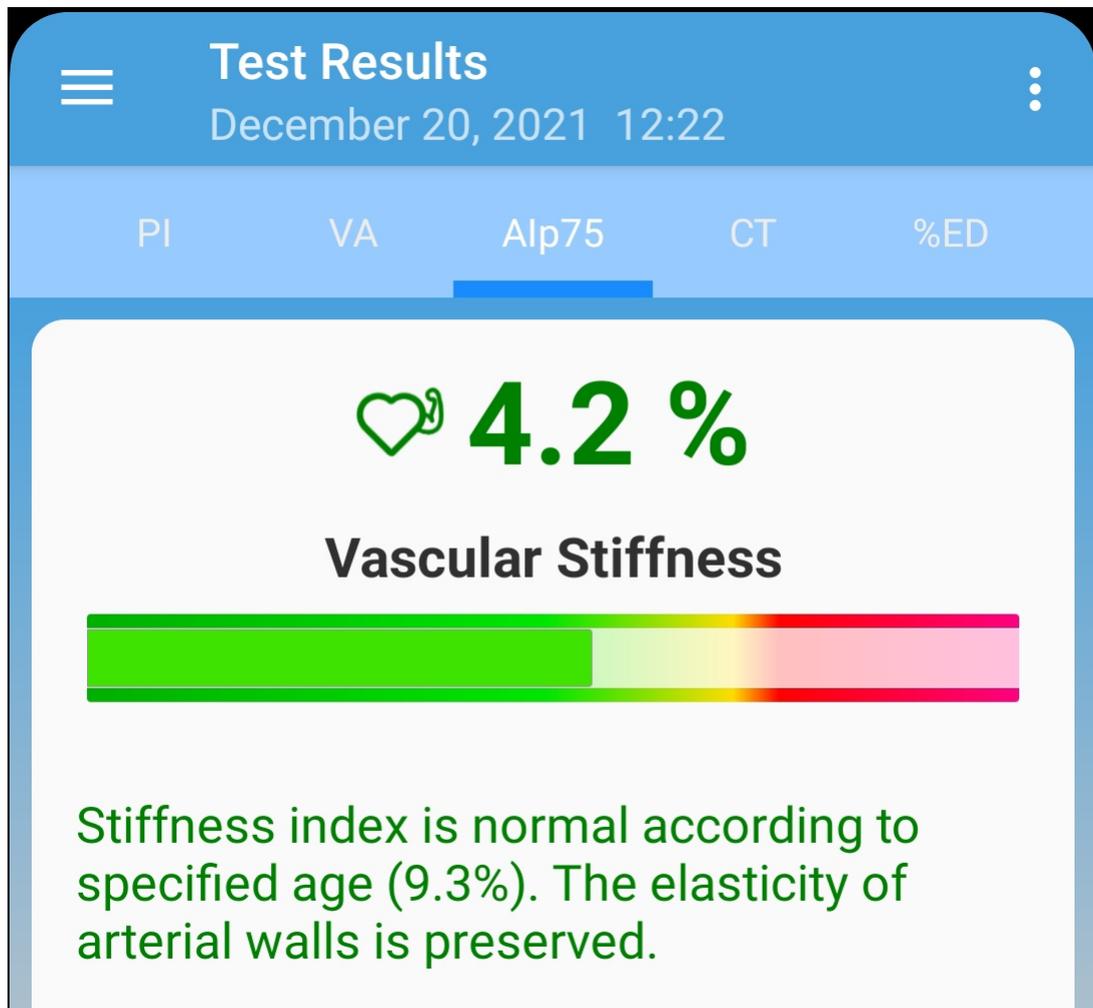


If your vascular age is less than the passport age, then this is good. A constant significant excess of the vascular age over the passport age may be a recommendation for consultation with a specialist. At the same time, you can note a decrease in vascular age against the background of an increase in blood pressure and pulse rate.

It is important to record this indicator at a certain time of the day, on the same hand, better the working one - right for a right-hander, left for a left-hander.

A good time to evaluate this indicator is considered to be the morning hours from 9 to 11.

3.5 Vascular stiffness

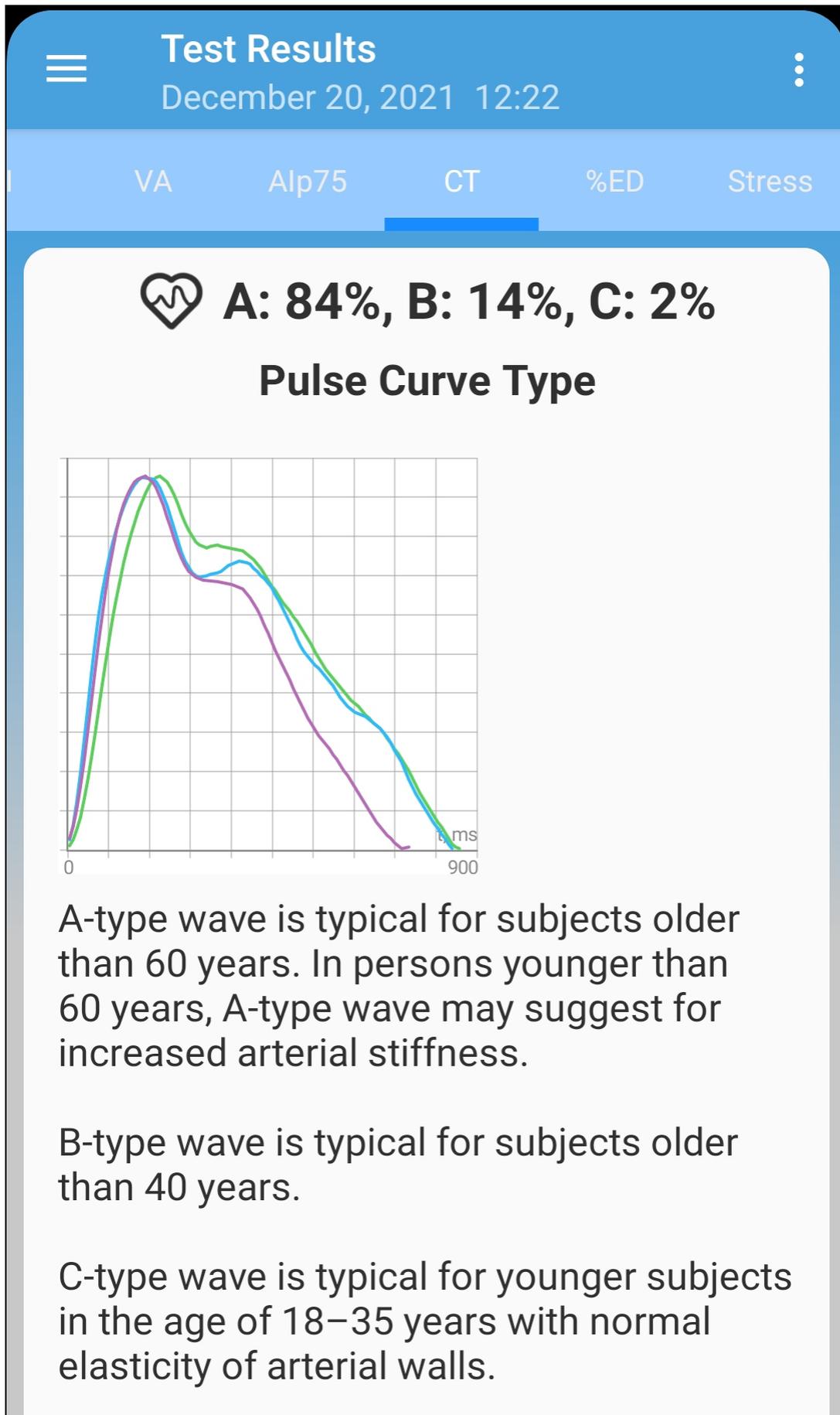


Here the sign in front of the number is important. If it is negative, then this rather indicates the preserved elasticity of the arteries. The greater is the negative value of the stiffness percentage, the better is the condition of the large arteries.

The normal values of this indicator depend on the age of the subject: in the age category from 18 to 35 years, a negative value from -40% to -5% is considered the norm. In the age category over 40 years, the norm ranges from -5% to 5%. For people older than 55 years, positive values of this indicator are typical. Of course, the aging process is irreversible and inevitably leads to a gradual increase in vascular stiffness, but regardless of your age, you should strive to reduce the vascular stiffness index through a healthy lifestyle.

For a correct assessment of this indicator, it is necessary to first set the real age of the user in the device.

3.6 Pulse wave type

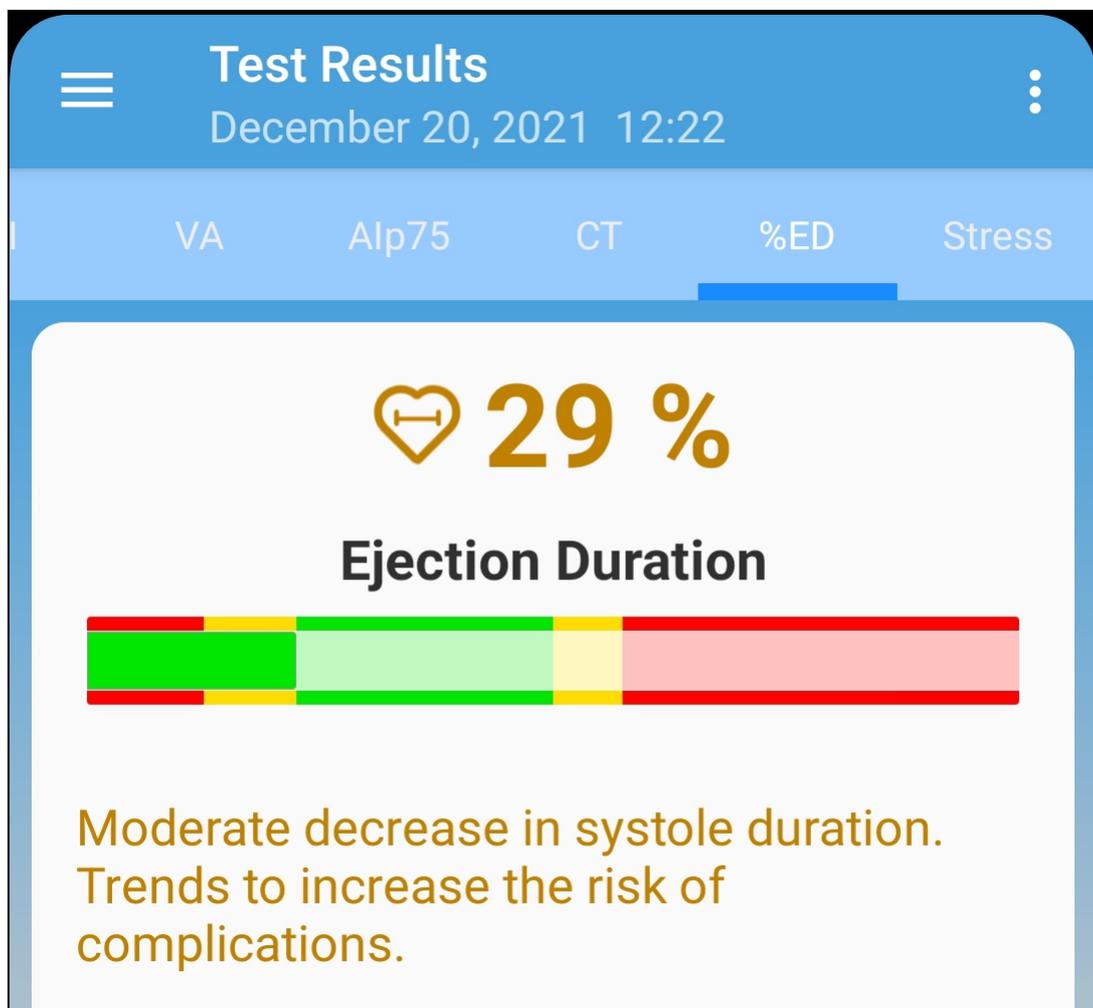


Pulse waves are divided into three types according to their shape.

Curve type C indicates a good condition of the arterial wall, type B indicates a satisfactory condition, and type A indicates an unsatisfactory condition. It is not uncommon to see more than one type of curves in a test. In this case, the higher the percentage of type C curves, the better.

- Wave type C is observed in young people up to 30 years old.
- Wave type B of the curve is observed in people over 40 years old, with a small probability of having health problems or temporarily in overworked conditions.
- Wave type A is observed in the elderly people over 55 years, but can also be encountered in younger people, with the likelihood of impairment or temporarily, with overworked conditions. In young people, wave A is often found in chronic sleep deprivation.

3.7 Systole duration



The ratio of systole duration to total cardiac cycle duration (ED%) reflects the characteristics of the myocardial work cycle.

Systole is the time of tension and work of the heart muscle, diastole is the time of relaxation, recovery, blood supply. The approximate ratio of systole to pulse wave length in the normal range is 1/3 or 33%. When the heart rate increases, the duration of the cardiac cycle shortens mainly due to diastole.

Sometimes the systole duration increases up to 50% or more, entering the zone of myocardial instability. To assess this index, methods have been adopted to convert the systole duration to the value expected at a pulse rate of 60 beats per minute.

The ED% values are characterized by the following qualitative intervals:

- less than 25%: pronounced decrease of systole duration. Increased risk of complications;
- 25% - 29%: moderate decrease in systole duration. Tendency toward an increased risk of complications;
- 29% - 40%: normal systole duration;
- 40% - 43%: moderate excess of systole duration over normal. Decreased heartbeat stability, risk of arrhythmia.
- more than 43%: pronounced excess of systole duration over normal. Significant decrease in the heartbeat stability, increased risk of arrhythmia.

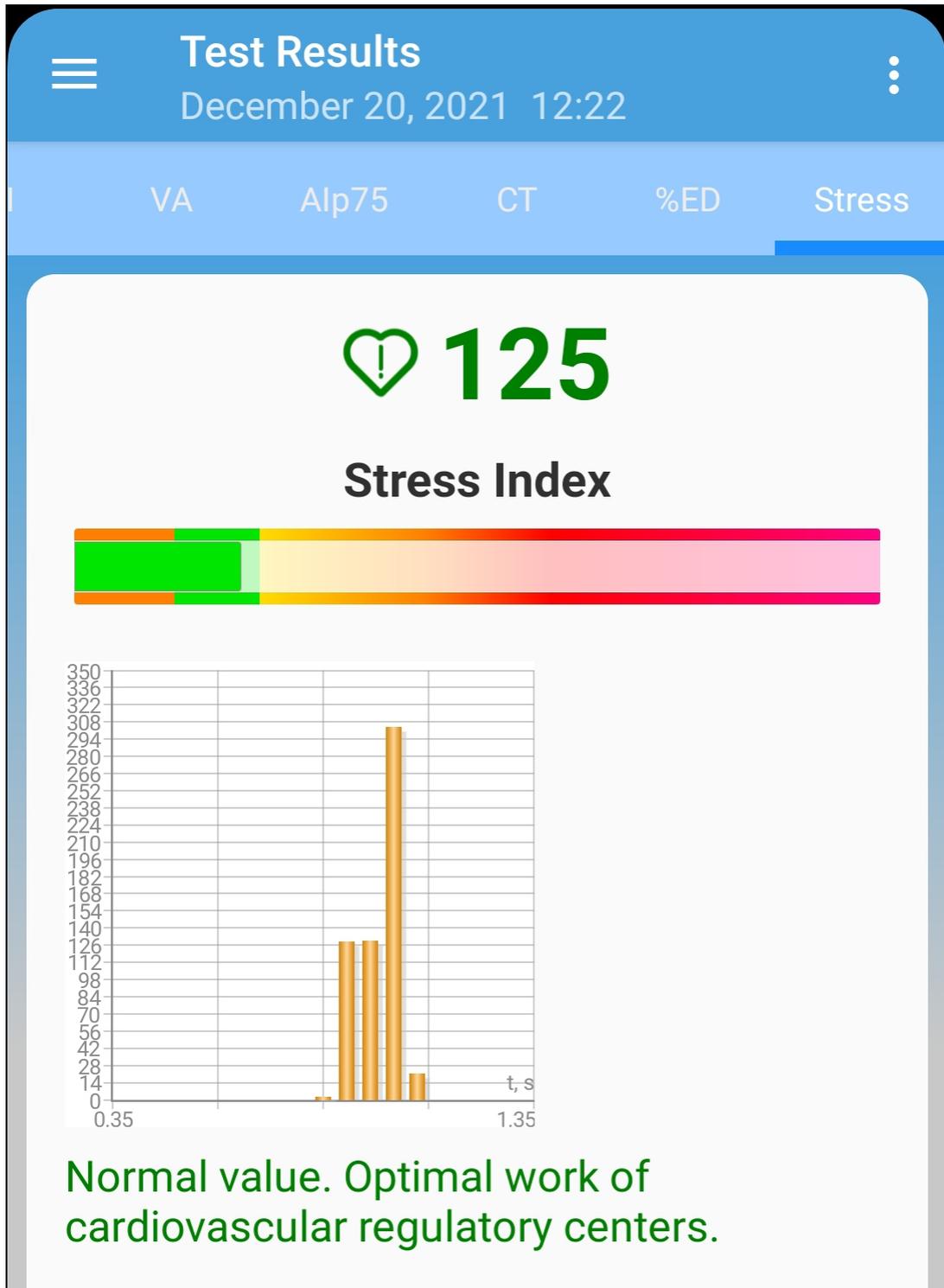
The boundaries of the assessment of this indicator for women can be shifted by +1%, for men by -1%. Or rely on the averages given.

Exceeding the systole duration is associated with a decrease in the heartbeat stability and increases the risk of arrhythmia. Sustained reduction in systole duration may accompany increased risks of cardiovascular complications.

Causes of systole duration exceeding the norm may be:

- Myocardial infarction;
- Reduced myocardial contractility;
- Enlargement of the left ventricular myocardium;
- Congenital peculiarities of the body;
- Certain medications taken;
- Alcohol abuse;
- Lack of potassium, magnesium;
- Low-protein diet.

3.8 Stress level



The indicator reflects the state of the centers that regulate the mode of operation of the body and the cardiovascular system in particular. Values less than 150 indicate a good, balanced state of regulation. Exceeding this threshold value indicates an excessive tension of regulatory mechanisms, and an index value of 900 or more indicates pronounced dysregulation.

The indicator is calculated based on the analysis of the distribution of the duration of pulse waves.

- 50 ... 150 - norm
- 150 ... 500 - stress, physical activity, fatigue, decrease in reserves with age
- 500 ... 900 - angina pectoris, psychophysiological fatigue, significant stress
- 900 . 1500 - significant violation of regulatory mechanisms

Comment: With arrhythmias, serious violations of the respiratory function, this indicator is not applicable. The result obtained in this case gives a falsely low indicator of stress.

Chapter

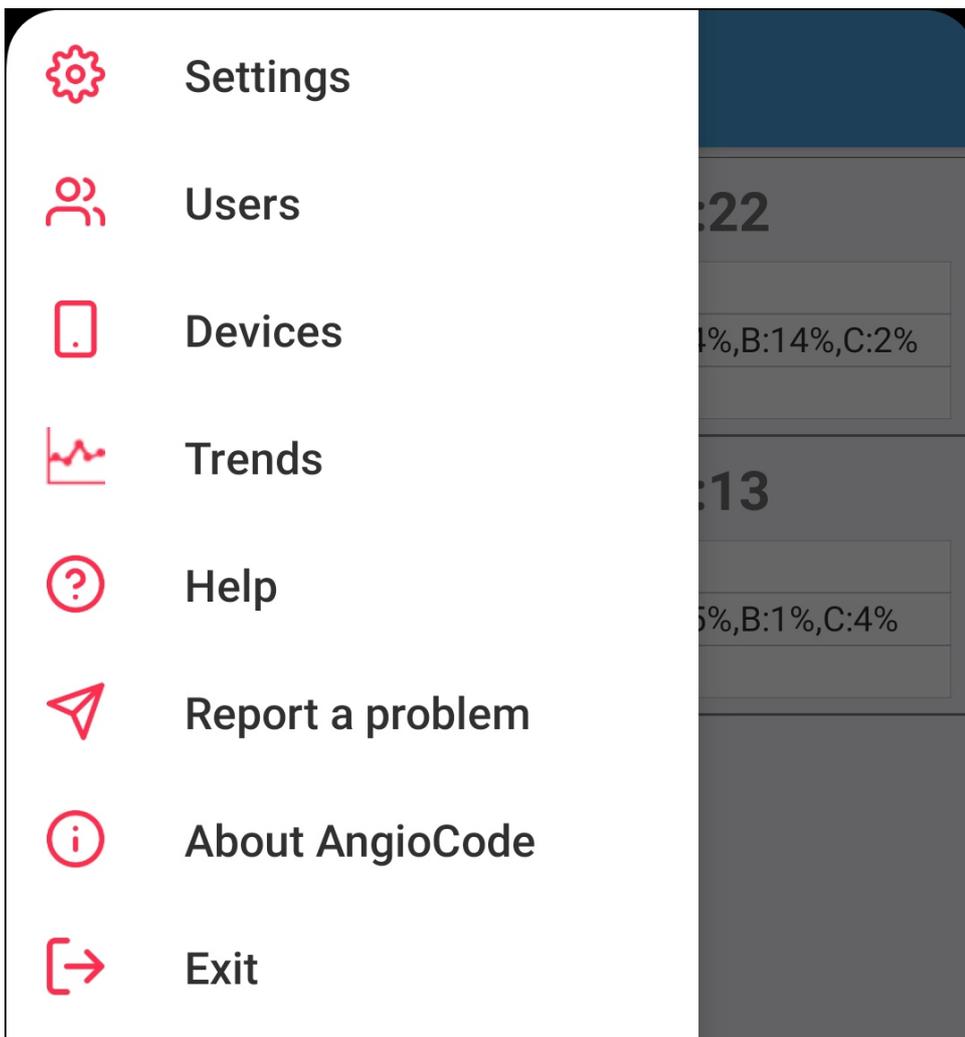
IV

4 Application interface

This section contains a description of the **AngioCode** mobile application interface. In the upper left corner of the screen is the navigation menu icon:



This menu contains the main actions for working with the application:



Settings - go to the [program settings](#).

Users - displays a [list of device users](#) who are registered in the program.

Devices - go to the [AngioCode-301 device selection page](#).

Trends - displays [graphs of changes in test results](#). This menu item is available if more than three tests have been performed.

Help - display the table of contents of the help information. All help information is located in the program itself and does not require access to the Internet.

Report a problem - display a form for sending a message to the application developers.

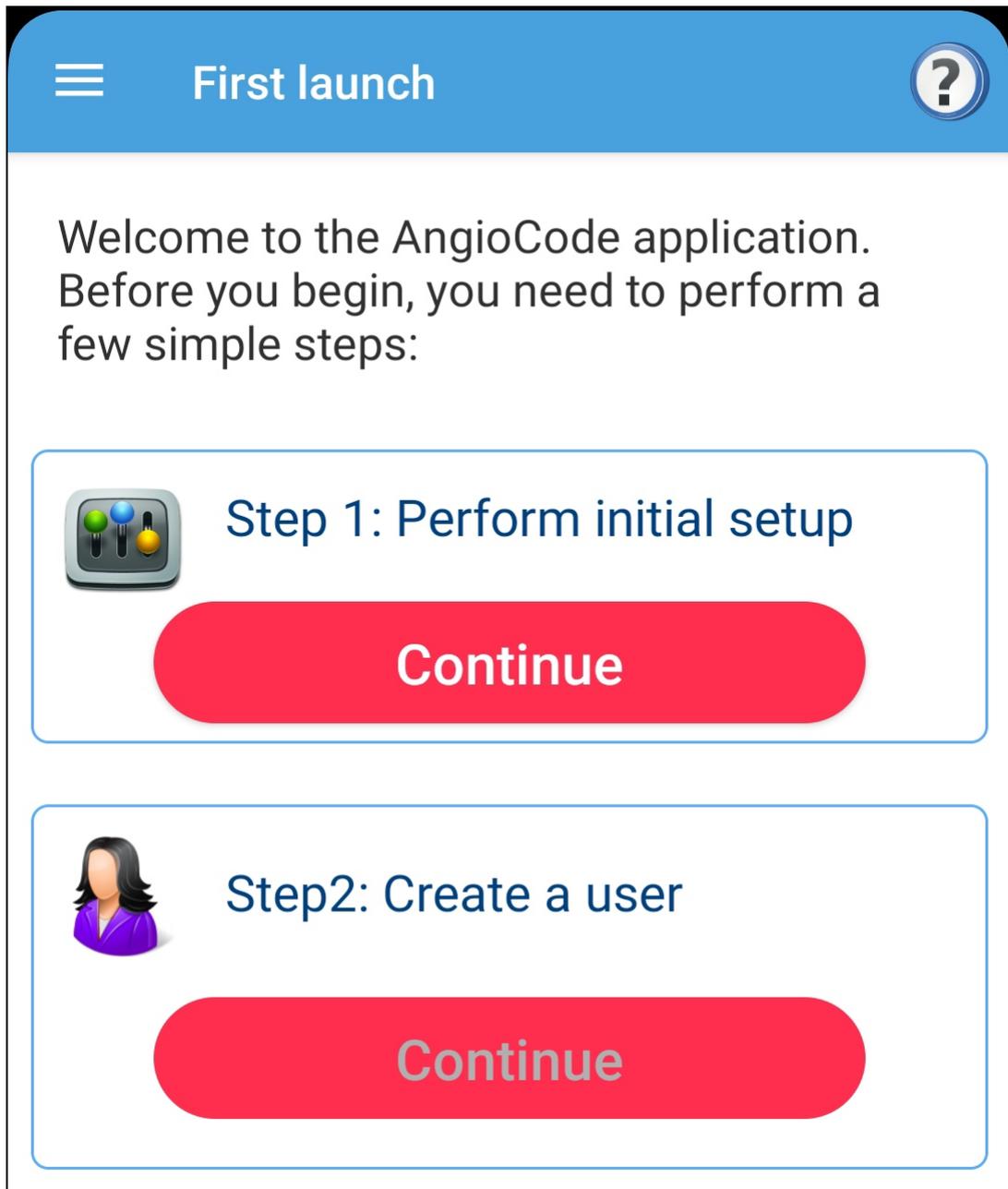
About AngioCode-301 - display information about the application and the device, if it is connected - the version of the application, the firmware version of the device, its serial number, etc.

Exit - exit the application. If the device is connected, it turns off and becomes available for work with a computer via USB.

The navigation menu is not always available. For example, during a test, you cannot perform any actions with the application, so the navigation menu is not available.

4.1 First launch

The first time you run the application, you are prompted to perform the initial setup and register the first user of the device:



Click the green “Continue” button. This opens the [application settings page](#), where you can set program options. You can use the default settings for most cases.

After confirming the settings, the button under “Create a user” sign becomes available. Select this button to create a device user and specify his/her data. The user editing page opens, where all fields are empty. Fill in all fields and click “OK” at the top of the screen.

After the user is created, the program returns to the home page of the application. Before at least one test is done, this page will be blank. To start the first test, click the “Start new test” button at the bottom of the screen.

4.2 Home screen

The home screen of the application displays a list of tests performed with the device:

☰
Dow John

December 20, 2021 12:22

HR = 67	SpO2 = 96.8	PI = 2.9
VA = 71	Alp75 = 4.2	CT = A:84%,B:14%,C:2%
%ED = 29	Stress = 125	

December 20, 2021 12:13

HR = 67	SpO2 = 96.8	PI = 4.2
VA = 66	Alp75 = 9.7	CT = A:95%,B:1%,C:4%
%ED = 30	Stress = 204	

May 20, 2020 14:24

HR = 67	SpO2 = 97.1	PI = N/C
VA = 32	Alp75 = 6.8	CT = A:100%
%ED = N/C	Stress = 260	

+
Start new test

For each test, its date/time and result values are indicated:

PR - [pulse rate](#).

Alp75 - [vascular stiffness](#).

VA - [vascular age](#).

CT - list of [pulse curve types](#). For each type, the number of waves of this type is displayed as a percentage of the total number of collected waves.

Stress - [stress index](#).

SpO2 - [blood oxygen saturation](#).

Quality - signal quality ([perfusion index](#)).

Level - signal level.

On the left, the result values are displayed as a color diagram. Color charts allows visually assessing the overall dynamics of changes in indicators.

Actions with the test list

Tapping the string with the test result opens a detailed view of the measured parameters - see links above.

Long tapping enables mark mode. Icons appear to the left of the results to mark multiple results:

December 20, 2021 12:22

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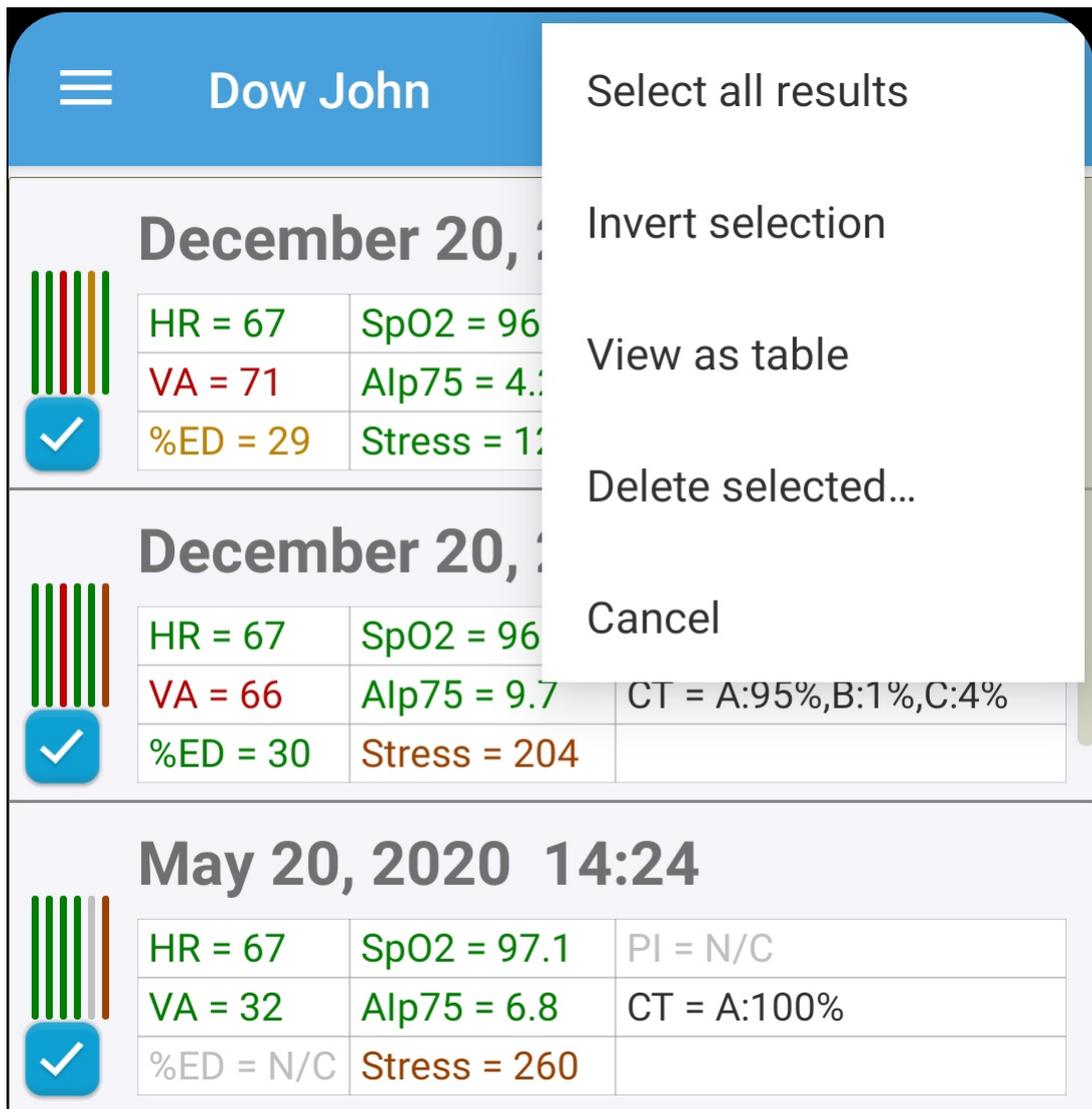
May 20, 2020 14:24

HR = 67	SpO2 = 97.1	PI = N/C
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%ED = N/C	Stress = 260	

You can perform the following actions with the marked tests:

- Delete
- View results as a table and share this table with anyone.

Check the required tests. To delete marked tests, click on the trash icon at the top of the screen. To view the results in a table, tap the options menu icon (three vertical dots) and select the appropriate item from the drop-down menu:



Mark all tests - tick marks appear for all tests.

Delete checked - delete marked tests after confirmation. The same action is performed by tapping the trash icon.

Table view - view the results in a table and share this table.

Cancel - all tests are unmarked and the icons to mark disappear. The same thing happens when you tap the back button on your phone.

Customizing the list view of test results

In the [application settings](#) you can select the elements that will be displayed in the tests list. You can disable the display of color diagrams and result values.

4.3 Settings

The settings are accessible through the navigation menu (the icon in the upper left corner of the screen). If the device is not connected to a phone/tablet, there will be no bookmark with the device settings.

4.3.1 Application

Application language - tap to select the language of the application interface. Russian language is available if it is supported by the mobile device.

Measurement system - Metric to enter user height in centimeters and weight in kilograms, English to enter user height in feet and inches and weight in pounds.

Enable cloud sync - see [Cloud sync](#).

Vibrate at the end of the test - since the test can take up to several minutes, it can be convenient to tell the device to vibrate when the test is complete.

Skip instructions, when running a test - when tapping the “Start new test” button, immediately proceed to the test, skipping screens with instructions on the rules for conducting tests.

Rotate the screen horizontally, when viewing the conclusion - when viewing the conclusion on the test results, automatically rotate the screen horizontally. The horizontal orientation of the screen improves the readability of the conclusion.

Skip instructions, when running a test - proceed to the actual test after entering blood pressure values, and skip the test recommendations.

Allow deletion of users and test results - when disabled, it blocks deletion of users and test results caused by accidental deletion attempts.

Delete successfully imported tests from the device storage - after establishing a connection with the device, the application automatically downloads from the device storage the test results that were performed using the device in offline mode (without connecting the device to a phone or computer). By default, after downloading, test results are deleted from the device storage to save space. Once deleted, results cannot be viewed offline without connecting the device to a phone or computer.

Show avatars in user list - display pseudo-random images with “portraits” of users in the user list of the device.

Show color charts in result list - display charts with vertical colored lines in the test results list. The colors of the lines correspond to the values of the measured indicators. Color charts allows visually assessing the overall dynamics of changes in indicators.

Show values in result list - display the values of indicators in the test results list. In case of turning off the display of values, the list becomes more compact.

Diagnostic mode - enable extended output of information in the application log file. When a crash occurs, the extended log can help developers figure out the cause of the crash.

4.3.2 Device

Here you can set the AngioCode-301. This bookmark is available only when the device is connected. All settings are stored in the device itself and are also valid when the device is operating in offline mode, without connecting to a phone or computer.

The “Users” button opens the [list of device users](#), which are located in the device itself. These users are numbered from 1 to 9. Using this list, you can associate application users with device users, i.e. specify which application users correspond to which device users, as well as perform other actions.

Device language - sets the device interface language, i.e. the language of inscriptions on the device display.

Display orientation - rotate the image on the device display.

Display brightness - set the brightness of the device display.

Device sound:

Enable device sound enable/disable all sounds selected below at once. If this option is disabled, the device will not produce any sounds.

On/off sound - sound when the device is turned on and off.

Key sound - sound when pressing the keys on the device housing.

Sound during test - sounds during the test.

End test sound - sound at the end of the test.

Memory card - information about the device memory.

“Format memory card” button - after confirmation, erase the device memory by formatting. **All users and test results are lost.**

Synchronize device time with phone/tablet - when connecting the device to a phone/tablet, synchronize the time of the device with the time of the phone.

Turn off the device at the end of the test - you can enable this option to save the device battery power.

Turn off the device display when connected to a phone/tablet - also saves battery life of the device. When a connection with a phone/tablet is established, the device display turns off until the key on the device housing is pressed.

4.3.3 Expert

It is not recommended to change the expert settings of the application. This can cause the program to malfunction.

Change expert settings only after consultation with the developers of the application.

Number of pulse waves for the test - select the number of pulse waves that will be recorded before the test ends. To calculate the test parameters, 100 pulse waves are sufficient. A larger number somewhat increases the accuracy of the calculation of some parameters, in particular, [stress index](#).

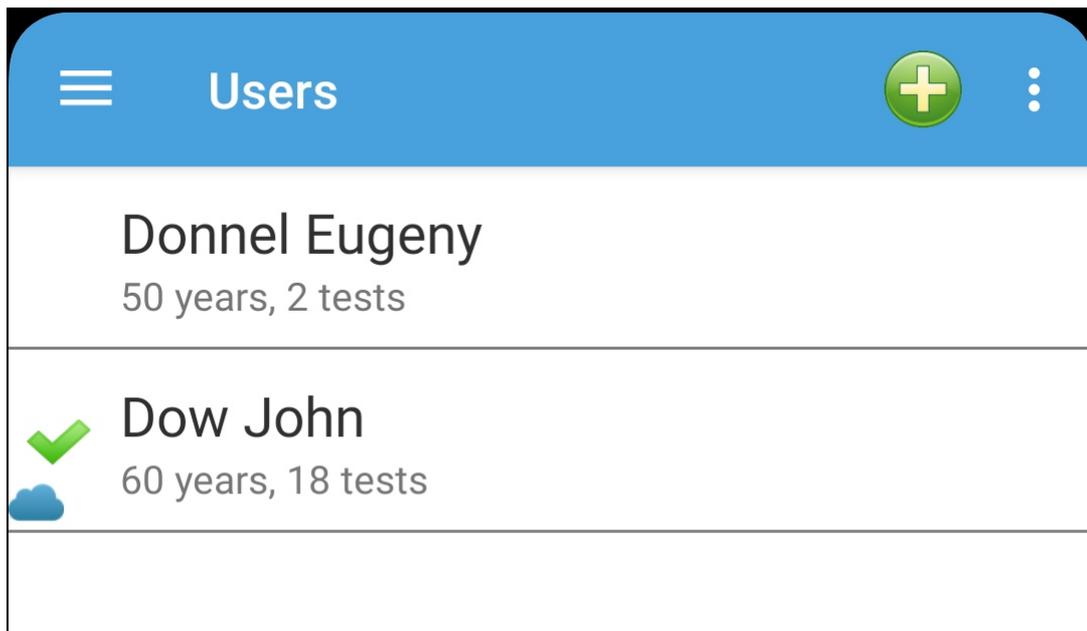
Minimal valid pulse index - minimal value of [perfusion index](#), at which the values of the indicators are considered reliable. The default value is 0.5%.

Scanning time for Bluetooth devices - maximum time the application waits for a response from the system to request the creation of a list of available Bluetooth devices. The default setting is 15 seconds. Under normal conditions, when the device is working properly, is close to the phone and there is no interference, the scanning of Bluetooth devices is much faster and there is no need to adjust the scanning time.

“**Debug**” **group settings** are related to the debugging information that is written to the application log file in diagnostic mode. Developers may ask you to enable a particular option in order to better understand the problem. By default, all of these options are disabled, because enabling them greatly increases the size of the log file and can affect the performance of the application. After enabling the debugging options, you should restart the application.

4.4 Users

The list of users is available via the navigation menu (icon in the upper left corner of the screen). Here you can select a user for testing, add a new user, import user from cloud storage and edit the data of an existing one.



A pseudo-random “portrait” (avatar) is displayed to the left of the username. Avatar display can be disabled in [program settings](#). The current (selected for testing) user is marked with a check mark on the left.

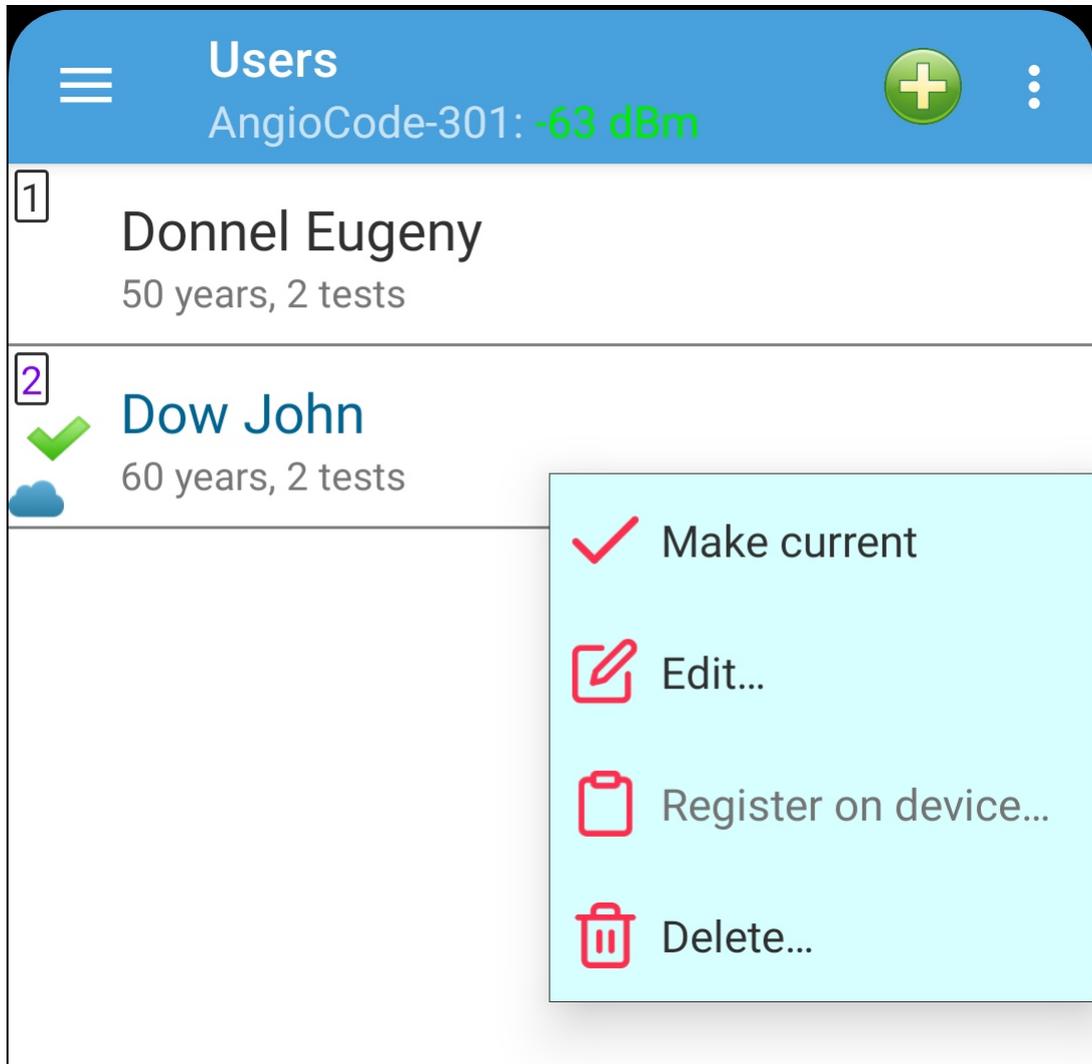
If cloud sync is enabled for the user, then a cloud icon is displayed on the left. If the cloud is blue - synchronization is successful, if it is gray - then synchronization is not available under current conditions (for example, there is no Internet connection).

To **add** a user, tap the plus icon at the top of the screen. A page will open where you can enter the details of the new user.

It is also possible to **import user data** and test data from the cloud storage if the user was previously registered in the cloud from another phone or tablet. To do this, tap the icon with a cloud and an arrow at the top of the screen. You will be prompted to enter the username and password for the user you want to

import. Next, a screen will open for entering user data - you will need to enter his last name, first name and middle name (at least one of these), because personal information is not stored in the cloud storage.

To go to actions with a user, tap his/her string in the list. A dropdown menu will open:



Make current - select this user for testing.

Edit - edit user data.

Register on device - if the AngioCode-301 device is connected to the phone, then you can assign a user number from 1 to 9, under which the user will appear when the device tests. To carry out tests, the user must be registered on the device. If this is not done here, then registration will be requested before the test.

Delete - delete user after confirmation. All user test results are also deleted.

4.4.1 Edit user data

The edit user data page is displayed when adding a new user from the [users list](#) and when editing the data of an existing user.

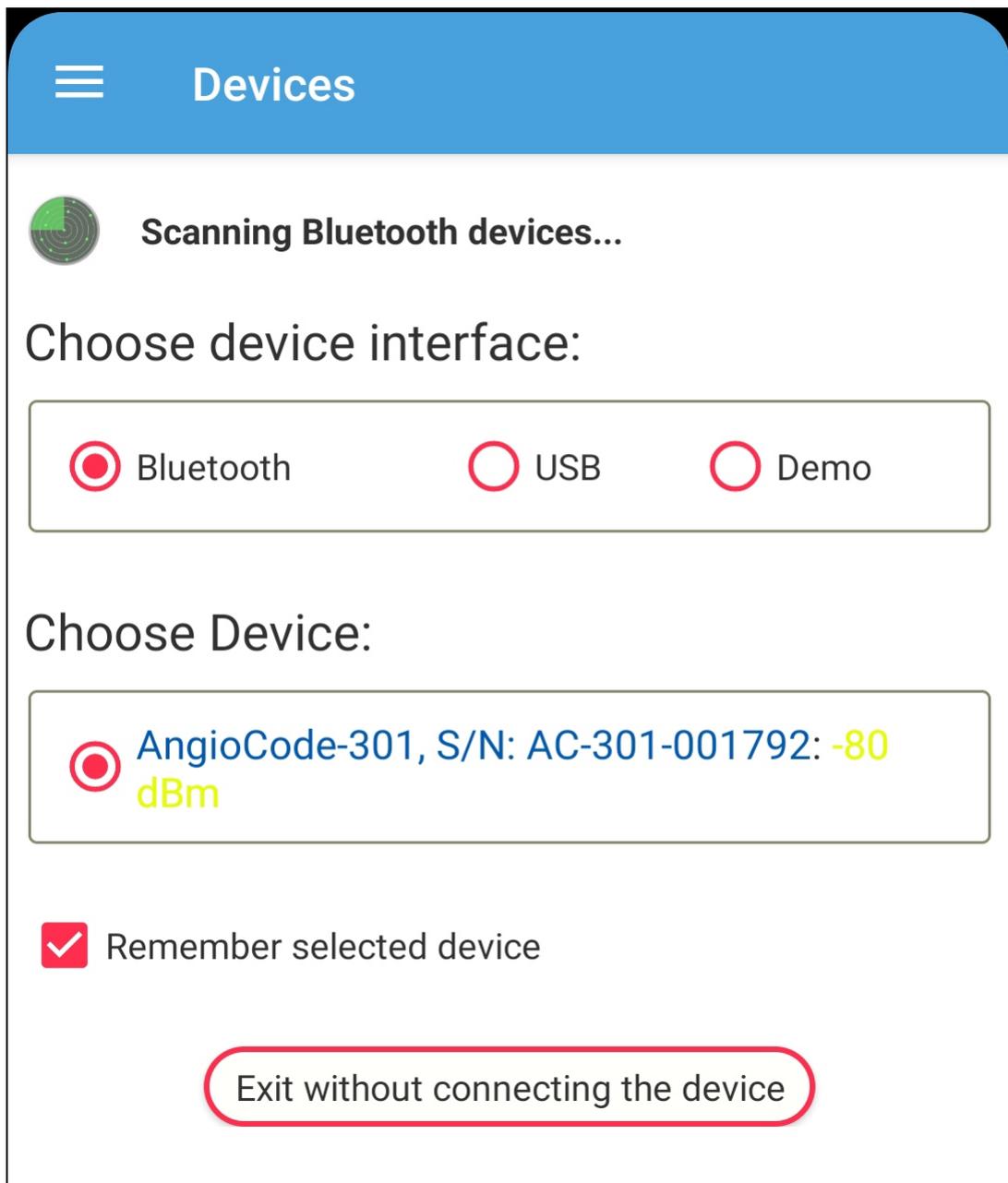
First name, last name, middle name - at least one of them has to be entered.

To enter a birthday, tap the corresponding field. Birthday, height and weight are necessary for the correct interpretation of the measurement results.

If the [cloud sync](#) is enabled in the [program settings](#), then synchronization can be controlled individually for the selected user. If the synchronization is enabled, you will need to enter your login, password and email address (a new password will be sent to this address if you forget it).

4.5 Devices

Device selection is available via the navigation menu (icon in the upper left corner of the screen). The device selection page is displayed:



Work with devices connected to a mobile device via Bluetooth and USB interfaces is supported. By selecting “Demo”, you can get acquainted with the operation of the program in demo mode - this does not require a device. In demo mode, the program works with a virtual device.

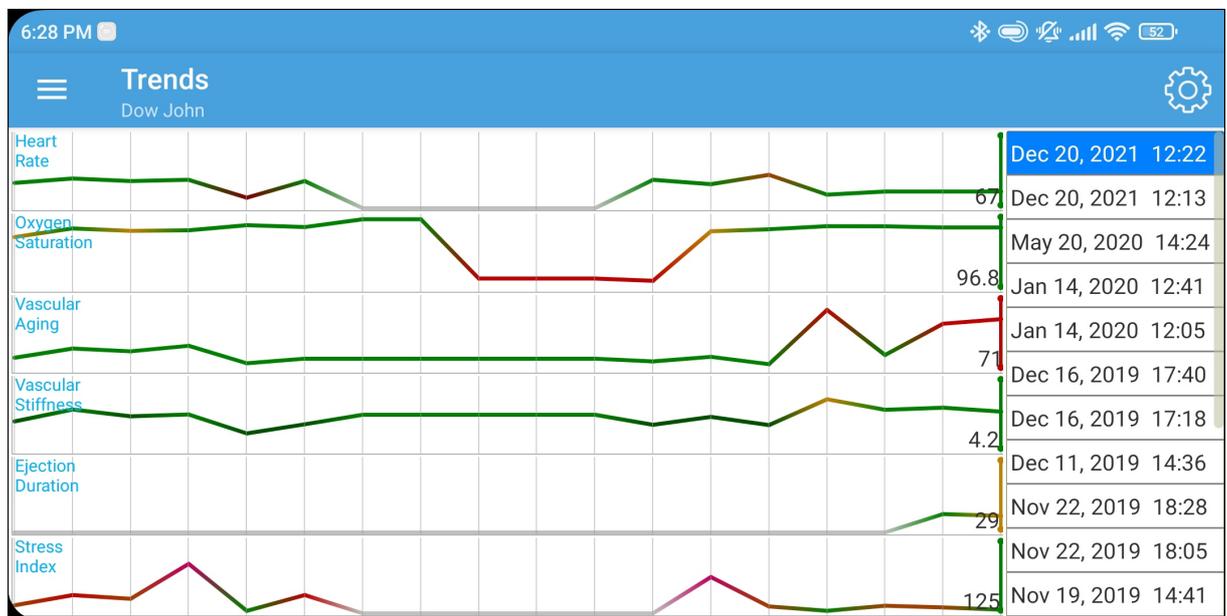
When you select an interface, the program scans the environment and detects devices available for connection. The “Select device” field displays a list of detected devices. In “Demo” mode, the virtual device is always available.

The “**Save selected device**” option tells the program not to display the device selection page before starting the test, if the selected device is turned on and the program was able to detect it.

After connecting the device via the Bluetooth the program takes some time to establish connection with the device and initialize it.

4.6 Trends

Trend graphs are available via the navigation menu (icon in the upper left corner of the screen). Graphs show the change in the measured parameters.



The list of test results is displayed on the right, the list can be scrolled vertically. The graphs display vertical lines corresponding to the test highlighted in blue. The value of the corresponding measured parameter is displayed next to the lines.

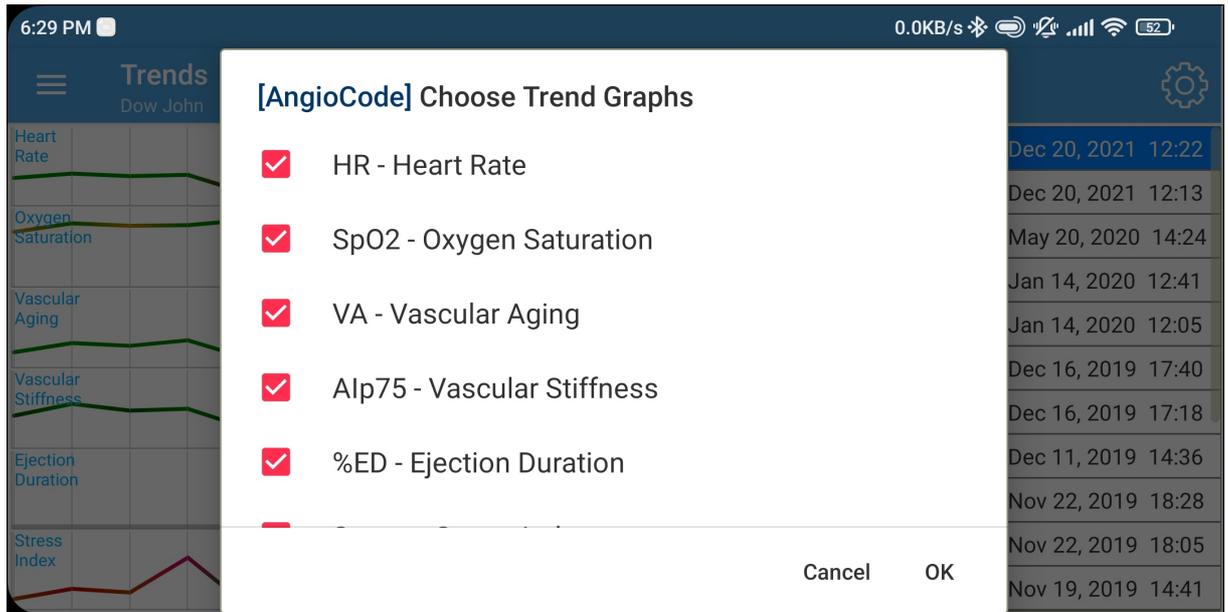
Tapping a result in the list moves the vertical lines to the location corresponding to the test.

A long tap on a result in the list opens a detailed view of test results.

Tapping the graph moves the vertical lines to the location corresponding to the tap, and in the list of tests, the corresponding test is highlighted in blue.

If there are too many test results to display at the same time, then the graphs can be scrolled horizontally.

The gear icon at the top of the screen opens a dialog box where you can select the parameters that will be displayed on the charts:



4.7 Report a problem

A form opens where you can send a letter to developers with wishes or report errors in the program. You need to enter your name and email address, to which, if required, a response will be sent.

If you want to report a bug in the application to the developers, first make sure that the “Diagnostic mode” option is enabled in the [expert settings](#). In diagnostic mode, the application creates an extended log file that can help developers. After enabling the diagnostic mode option, you need to restart the application.

If your message is not related to the operation of the user database, then uncheck “Include test database in the report”. This will slightly reduce the size of the message.

Chapter



V

5 Cloud sync

The **AngioCode** diagnostic complexes provide the possibility to synchronize user data and test results with a cloud storage. The synchronization scheme is very similar to the scheme used by mobile phones to synchronize contacts and other account data. When synchronization is enabled, the data of registered users and the results of their tests will be the same on all computers and mobile devices where these users are present. In the context of synchronization, a user is a person entered into the database on the device. Internet access is required for synchronization. The amount of data transferred during synchronization is small.

Each user of the program is registered in the **AngioCode** cloud database separately, i.e. has its own username and password. Synchronization of test results data is performed only for registered users. The **AngioCode** user can be registered either directly from the program or via the <https://www.angiocode.com> website.

Personal information of users, namely last name, first name and middle name, is not stored in the cloud. Only the username and password are used to identify users.

The synchronization can be disabled for all users (in [program settings](#)), and for each user separately.

Chapter

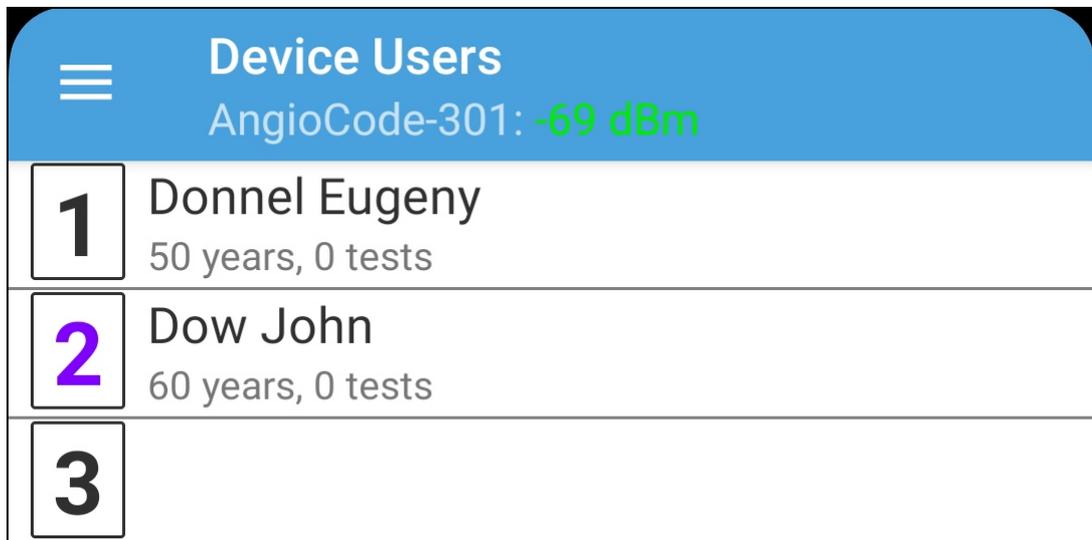


VI

6 Application screens

Various screens that the **AngioCode** application displays.

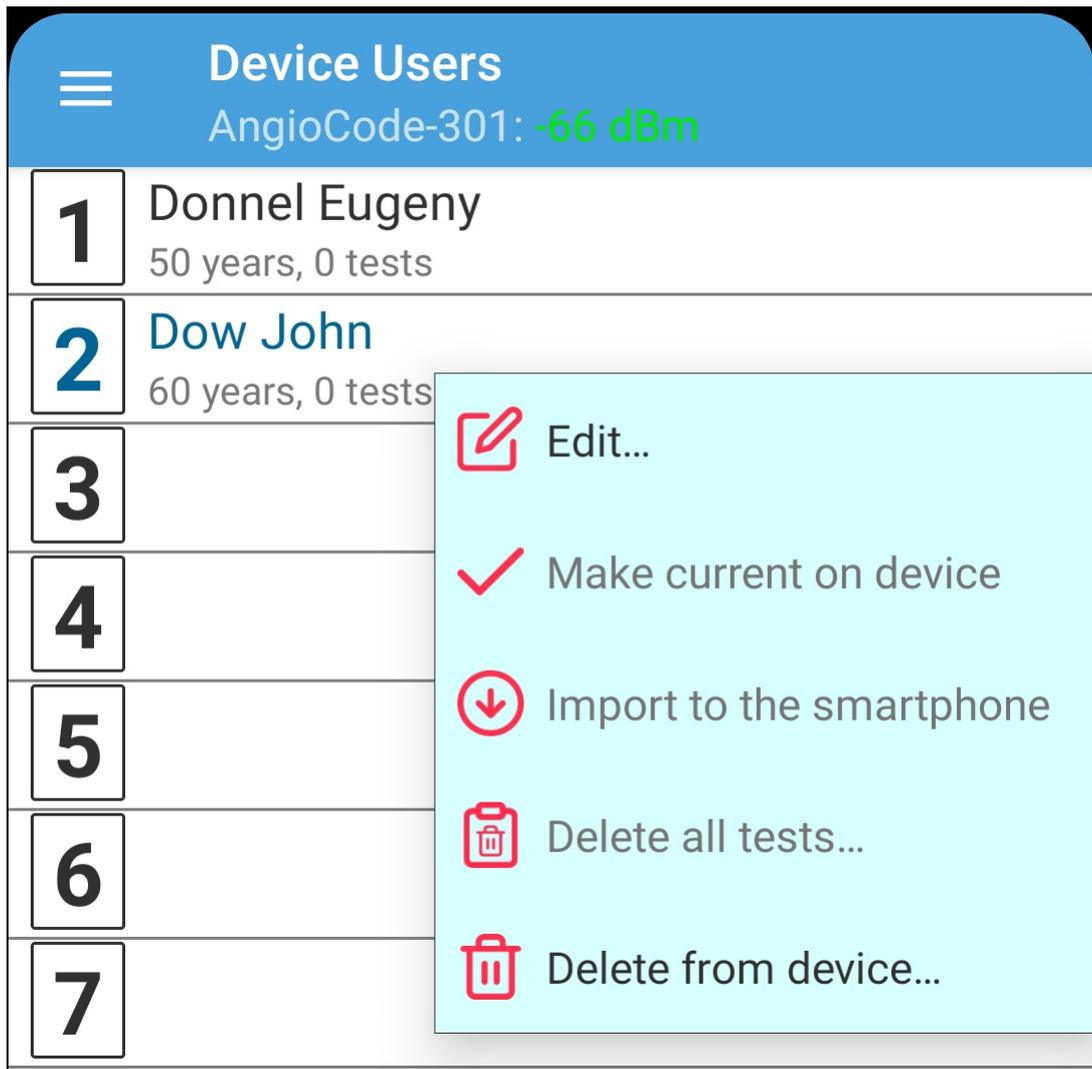
6.1 Device users



This is a list of users of the connected device - those users whose information is in the device itself. With these users, the device works in offline mode, i.e. when it is not connected to a computer or phone.

Users have numbers from 1 to 6. In the figure you can see that the users with numbers 1-4 have first and last names, and user number 6 has the characteristic name User6. This means that users 1-4 were logged into the device when the device was connected to a computer or phone. User number 6 was created by the device itself in offline mode when the device was not connected to a computer or phone.

Tap the user string to perform actions with the user:



Edit - [edit the data of the selected user](#). If the user is in the phone database, his/her data is stored in both the phone and the device. If the user is in the device, but is not in the phone database, the user data is changed only in the device.

Make current on the device - select the user to perform tests with the device in the offline mode. The number of the selected user is displayed in the status bar of the device:

Import to phone/tablet - transfer user data from the device to the phone. If necessary, the edit user data screen opens.

Delete all tests - delete user tests from the device memory to free up space.

Delete from the device - delete both user information and tests from the device memory.

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