Stethophone

PRO v.3.X.X

Includes prescription and OTC use

User Guide

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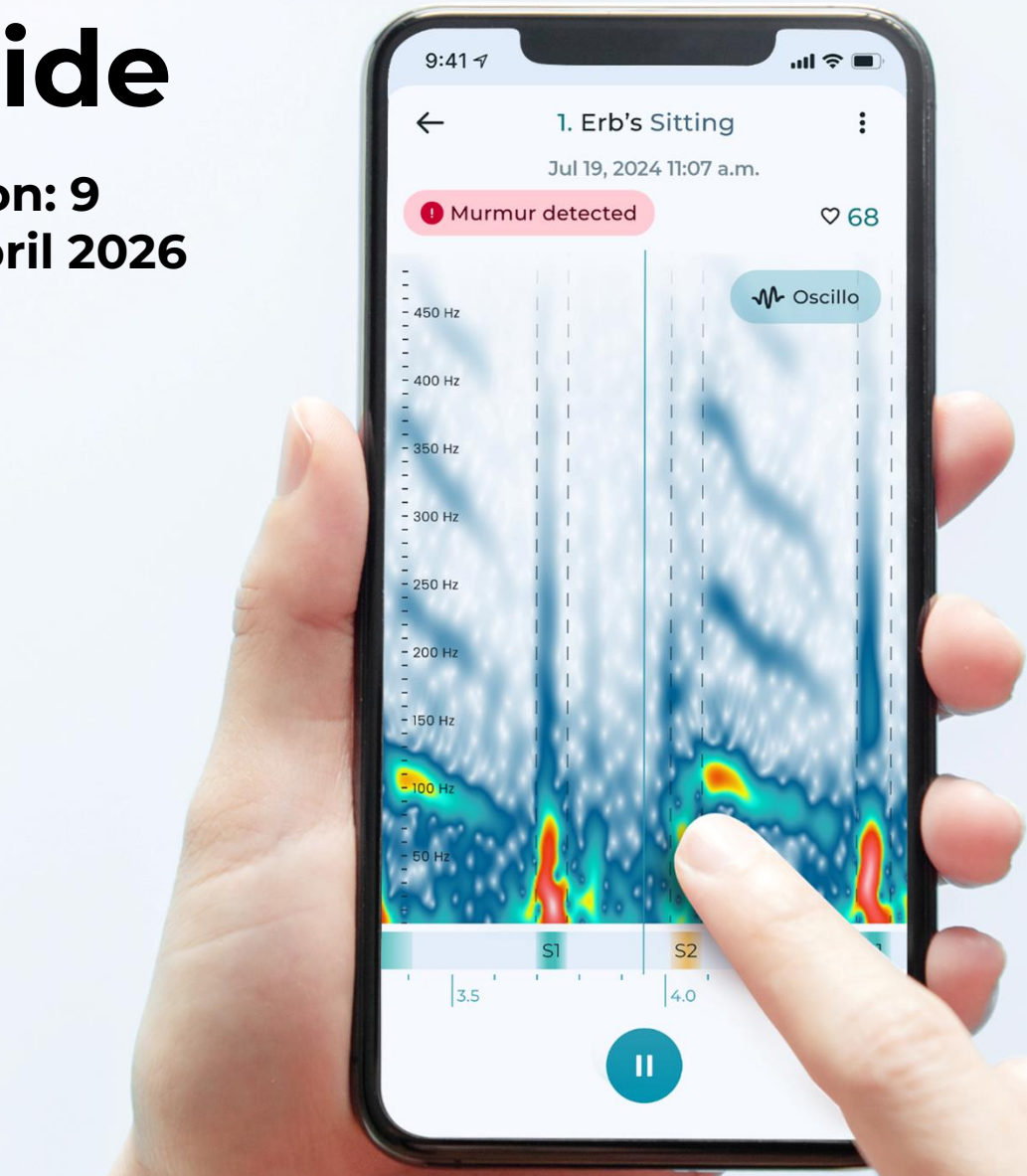

Stethophone

Directions for use information

Directions for use:

- Do not use Stethophone for any purpose other than specified in the Indications for Use.
- **For all users:** All features are available to every user except for automated analysis results.
- Rx ONLY **For prescription use only:** Access to automated analysis results is only available for professional use or under supervision of a licensed healthcare practitioner.
- Stethophone cannot diagnose, prevent, mitigate, treat, or cure any health conditions and can only be used for diagnostic decision support. Stethophone is not intended to be used as the sole means for diagnosis. Stethophone is not intended for self-diagnosis.
- Stethophone is not a substitute for professional medical advice; any information or results provided by Stethophone require medical evaluation by a clinician. If you are experiencing chest pain, pressure, tightness, shortness of breath, or any other sensations that you suspect may be a medical issue, call emergency services.
- Stethophone can only be used on specified smartphone models.
- Remove any cables, chargers, and smartphone cases prior to listening in real time or recording sound.
- Disable Sound Recognition, Headphone Accommodations, and Voice Isolation for your smartphone before real-time listening or recording, as these features may affect microphone input. Compatibility with accessibility features and hearing aids has not been evaluated.
- For effective sound capture, press the bottom of the smartphone to the skin so that there are no gaps.
- Wireless headphones are required to listen in real time or during recording. Any standard headphones can be used for listening to recorded sound.
- Record sound in a quiet place.
- Listening through clothes is not recommended. It may reduce Stethophone effectiveness.
- An Internet connection is required in order to record, send examinations, and listen to recordings.

- Familiarize yourself with User Guide before using Stethophone. There are no additional training requirements for the use of Stethophone.

Safety precautions

- Do not use over damaged skin areas.
- Clean the smartphone before each use in accordance with Apple Inc. cleaning guidelines [https://support.apple.com/en-ca/HT207123] or the USA government recommended cleaning rules for mobile phones [https://www.fcc.gov/consumers/guides/how-sanitize-your-phone-and-other-devices].
- It's recommended to switch off other applications, especially graphics-intensive or processor-intensive, while using Stethophone to avoid increased GPU usage. If for any reason you find your smartphone too warm at some point, temporarily pause the usage of Stethophone. Follow Apple Inc. recommended instructions for temperature management [https://support.apple.com/en-us/118431].
- Follow Apple Inc. recommended product safety instructions, [https://support.apple.com/en-ca/guide/iphone/iph301fc905/ios] including:
  - Do not use on patients with pacemakers, implantable cardioverter-defibrillators, and cardiac resynchronization therapy devices.
  - Do not use near magnetic resonance imaging (MRI) devices.
  - Do not press to the body while charging the smartphone.
  - Do not use if the smartphone has visible physical damage.

Cybersecurity precautions

- Only authorized users can access Stethophone.
- Two-factor authentication will be triggered every 30 days.
- You need to authorize every new smartphone for Stethophone use.
- Installing antivirus on smartphones is recommended for your data protection.
- Ensure you have the right to send examination data to others.
- Do not share your Stethophone credentials with anyone.
- You will be logged out after 10 minutes of inactivity.

- When Stethophone is open, do not leave your smartphone unattended and unlocked.
- Log out of Stethophone when you are not using it.
- If the system becomes unavailable due to networking, cloud, or connection problems, you will be shown a message. No further action is required. When the connection is available, the application will continue working as intended. Stethoscope remains available for use regardless of the connection status.
- Stethophone is being monitored on a regular basis for potential threats that may result in cybersecurity incidents, such as unauthorized use of the system as a gateway to other systems, unauthorized use of another user's account, unauthorized use of the system, or execution of malicious code that destroys or steals data. If a cybersecurity incident affects the application or Personal Health Information loss is identified, you will be informed about the incident via email and, if necessary, given instructions on how to proceed.
- Manufacturer constantly maintains the appropriate security level of the application. When new versions are released, we will inform you to update your application.

Privacy and terms

Carefully read the Disclaimer, Privacy Policy, and Terms & Conditions for using Stethophone. These documents will be presented for your acceptance when accessing Stethophone for the first time. At any point after accepting the documents, you can find the documents in **Settings >> Legal Documents**. You can also view the legal documents at any time by tapping Legal Documents on the Landing or Sign Up screens.

Manufacturer

Sparrow Acoustics Inc., located at 2416 Natura Dr., Lucasville, Nova Scotia, Canada, B4B 0X3.

Authorized representative in Ukraine

Limited Liability Company “LA LAWYERS (Kyiv)”, EDRPOU code 36300655. Actual company address: 04070 Ukraine, Kyiv, 8 Illinska St., block 3, 1st floor, e-mail: office@l-a.com.ua, tel. + 380 (44) 425 4050.

Date of the last revision of the User Guide: April 2026.

How to report serious incidents or other complaints, or get answers to any questions that arose while using Stethophone

To ensure further effective and safe use of Stethophone, please report any complaints on device performance and any incidents detected during the use of this medical device to the Authorized Representative in Ukraine: Limited Liability Company “LA LAWYERS (Kyiv)”, 04070 Ukraine, Kyiv, 8 Illinska St., block 3, 1st floor, e-mail: office@l-a.com.ua, tel. + 380 (44) 425 4050.

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1. Introduction

Thank you for choosing Stethophone, version Pro! Stethophone has been developed in collaboration by experienced acousticians, cardiologists, and software developers.

Stethophone is an application for your smartphone that allows you to listen to heart and lung sounds in real time, record these sounds using specific spots on the body for further analysis, and send these recordings to physicians. Pro version of Stethophone also offers automated basic analysis of heart sounds. To be a Stethophone Pro user, you must be a licensed healthcare professional or use the app by the order or under supervision of a licensed healthcare professional. Going forward, users that use the app prescribed to them will be referred to as “home users”, meaning they are regular users without any medical training using the app by the order and under supervision of licensed healthcare professionals.

This user guide describes the Stethophone functionality and information you need to know to use Stethophone, version Pro. Please read the guide carefully before using Stethophone and refer to it for future questions.

In addition to this user guide, you can watch a video training module [https://stethophone.com/video/v3xRx/en] with a brief summary of the Stethophone functionality.

2. Product name

Our product name is “Stethophone Pro”. Devices of this type are commonly called smartphone stethoscopes, phonocardiographs, or cardiac monitors.

3. Product description

Stethophone is an electronic stethoscope software application that operates on smartphones.

Stethophone enables the capture and amplification of chest sounds for real-time or recorded listening. Cloud storage with sound record sending capabilities, filtering for selected frequency ranges, and visualization all assist with sound analysis.

Stethophone is designed to assist healthcare professionals in both hearing and visualizing heart and lung sounds during a physical examination of a patient and in storing recorded sounds in the cloud for later analysis. It also enables home users to record and send chest sounds to their physicians.

Stethophone can be used for the assessment of chest sounds of adult patients. Assessment should be performed by healthcare professionals, while sound capturing can be performed by both healthcare professionals and home users.

Stethophone performs basic analysis of heart sounds allowing to detect the presence of murmurs, locate heartbeats on the timeline (S1/S2), and calculate timing between them.

Key product features:

- Capturing chest sounds using the smartphone microphone:
  - Real-time listening to chest sounds,
  - Recording of chest sounds.
- Sending examinations to specialists for assessment,
- Two modes of sound visualization: oscillogram and spectrogram,
- Detecting murmurs, timing for S1 and S2 sounds, and calculating heart rate,
- Selecting from three audio filters for listening:
  - Bell: Traditional filter used in stethoscopes for low frequency sounds,
  - Diaphragm: Traditional filter used for higher frequency sounds of heart and lungs, and
  - Starling: Filter for listening to the full frequency of chest sounds.

Collectively, these features enable home users to acquire their own sounds, share them with healthcare professionals, and control their health under the supervision of a healthcare professional, as well as allow healthcare professionals to examine and monitor patients on site and remotely, seek out second opinions from specialists, and use the device in a telemedicine context.

3.1. Intended use / Indications for use

Stethophone Pro is an electronic stethoscope that enables detection, amplification, filtering, and transmission of auscultation sound data (heart and lungs), whereby a clinician at one location can listen to the auscultation sounds of a patient acquired on site or at a different location. Stethophone Pro is intended for use on adult patients. Stethophone Pro is not intended for self-diagnosis and not intended to be used as a sole means of diagnosis. Stethophone Pro can be used in clinical and nonclinical environments.

For Rx-only: Stethophone Pro is intended to provide decision support to clinicians in their evaluation of patients' heart sounds. The software analyzes heart sounds and phonocardiograms and can automatically detect murmurs that may be present, sound timing and character, including S1, S2, and the absence of a heart murmur. The interpretations of heart sounds offered by the software are not diagnoses and are meant only to provide decision support to the clinician, who may use the result in conjunction with their own evaluation and clinical judgment.

For OTC: When used without access to the automatic analysis feature or under supervision of healthcare professional, Stethophone Pro is also intended to be used by lay users.

3.2. How to use this guide

Stethophone Pro has a dual intended use, where most of the functionality is available to all users, while the automated heart sound analysis function is accessible only with a prescription (see section 7.3. Heart sound analysis). Some chapters in this guide describe functionality exclusively for prescription users and are clearly marked with the Prescription Only Rx ONLY symbol. If you do not have a prescription, you may skip any chapters marked as Prescription Only.

To view the heart sound analysis results, you must be a licensed healthcare professional or operate the device by a prescription or under the supervision of a healthcare professional. Otherwise, the analysis results will remain locked (indicated by a Lock icon 🔒) to prevent unauthorized access without a prescription.

The access to analysis results can be unlocked with a one-time activation code (see section 7.3.1 Unlocking analysis results in Stethophone Pro). If you are a licensed healthcare professional, you can write to the manufacturer at support@stethophone.com to learn more about receiving the code. If you are a patient/non-medical user, please ask your healthcare professional for a prescription.

3.3. Recommended equipment

To use Stethophone, you need the following equipment:

Smartphone: Stethophone is an application for Apple iPhone use only. Stethophone is compatible with the following iPhone models: XS, XS Max, XR, SE 2 generation, 11, 11 Pro, 11 Pro Max, 12, 12 Pro, 12 Mini, 12 Pro Max, 13 mini, 13, 13 Pro, 13 Pro Max, SE 3rd generation, 14, 14 Plus, 14 Pro, 14 Pro Max, 15, 15 Plus, 15 Pro, 15 Pro Max, 16, 16 Plus, 16 Pro, 16 Pro Max, 16e, 17, Air, 17 Pro, 17 Pro Max. Stethophone is not compatible with iPad.

Stethophone operates on iOS 18 or higher.

*iPhone and iOS are registered trademarks of Apple Inc.

Bluetooth headphones: To listen to the chest sounds in real time, we recommend using headphones that are connected to the smartphone via Bluetooth. The type of headphones can be “in-ear” or “over-ear”.

*Bluetooth is a registered trademark of Bluetooth SIG Inc.

When listening to recorded sounds, you can use either Bluetooth or wired headphones.

For the best Stethophone experience, set your smartphone volume to 50%. If necessary, you can additionally amplify the audio during live listening using the Stethophone app features.

3.4. Cleaning requirements

Carry out maintenance and cleaning of the smartphone in accordance with the manufacturer's instructions in Apple Inc. cleaning guidelines [https://support.apple.com/en-ca/HT207123] or with the USA government recommended cleaning rules for mobile phones [https://www.fcc.gov/consumers/guides/how-sanitize-your-phone-and-other-devices]. It is recommended to wipe the microphone with isopropanol swabs between each use.

3.5. Software updates

Sparrow Acoustics provides software updates. You should always keep your Stethophone application up to date. Updates often offer new functionality or address emerging security threats, protecting against potential vulnerabilities, and contain enhancements for better performance and user experience.

When new versions are released, we recommend you to update the application before continuing to work with Stethophone. For important changes, we may require updating the application before continuing to use it.

4. Stethophone installation and registration

Stethophone is a standalone mobile application that does not require additional hardware or software to function. Stethophone is ready for use from the moment it is installed, and authorized on your smartphone. No additional audio calibration is required.

Before using Stethophone, download the application from a location defined by Sparrow Acoustics Inc. (e.g., App Store) to your smartphone, and then follow the registration procedure (see section 4.1. New account registration).

Stethophone allows to create multiple users on the same smartphone (e.g., your family members). Each user will have to go through the registration process.

Stethophone uses two-factor authentication to provide an extra layer of security. Re-authentication is triggered every 30 days.

Stethophone needs access to the iPhone microphone to record or listen to the chest sound. It's recommended to also enable geolocation to function most effectively. You will get in-app prompts to provide access to the microphone and geolocation.

After registration you must familiarize yourself with the short Welcome guide slider before you can start using the application.

For your reference, this User Guide contains a full list of icons and buttons that are used in the application (see Appendix 1 Explanation of icons).

At any moment, you can contact the Stethophone support team with any questions by tapping Help Center on the Landing and Login screens.

4.1. New account registration

To register a new Stethophone account, you need to provide your email address and create a password. No other personal information is required for registration.

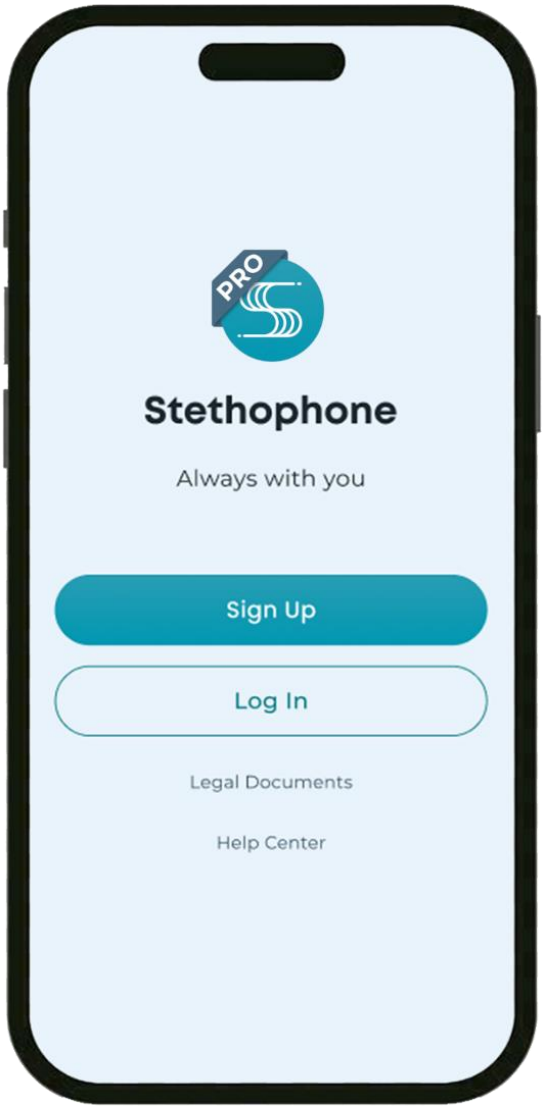


Figure *1*. Landing screen

Download Stethophone and follow these steps to register a new Stethophone account and authorize your smartphone:

1. Open the Stethophone application.
2. On the Landing screen, tap “Sign Up”.

3. Enter your email address, and then tap “Continue”.

> NOTE: If you enter an email address that is already in use with an active account in Stethophone, you will receive an email notification about a new registration attempt.

4. Create a new password for your Stethophone account and tap “Create”.
   - The password should be at least 10 characters long and should contain at least 1 number, 1 special symbol, 1 lowercase letter, and 1 uppercase letter.
   - The password should not match your email address.

   At this point, your Stethophone account is registered and the email address and password you provided can be used to sign in to Stethophone. Proceed with a two-factor authentication to ensure the security of your Stethophone application.
5. Check your email. The verification code is sent to your email.
6. Return to Stethophone and enter the verification code to authorize your smartphone.
7. Read and accept the legal documents.

   When you change or update your password, the application will require the new password to be different from the current password.

4.2. Doctor Mode

Stethophone offers a feature, Doctor Mode, which provides advanced functionality useful for healthcare professionals, such as the stethoscope, additional sound filters, and the ability to change the playback speed of a chest sound recording. You can enable or disable Doctor Mode at any time.

By default, Doctor mode is disabled to provide a cleaner and more intuitive interface for home users. You can enable/disable Doctor Mode by switching the toggle in **Settings >> Doctor Mode**.

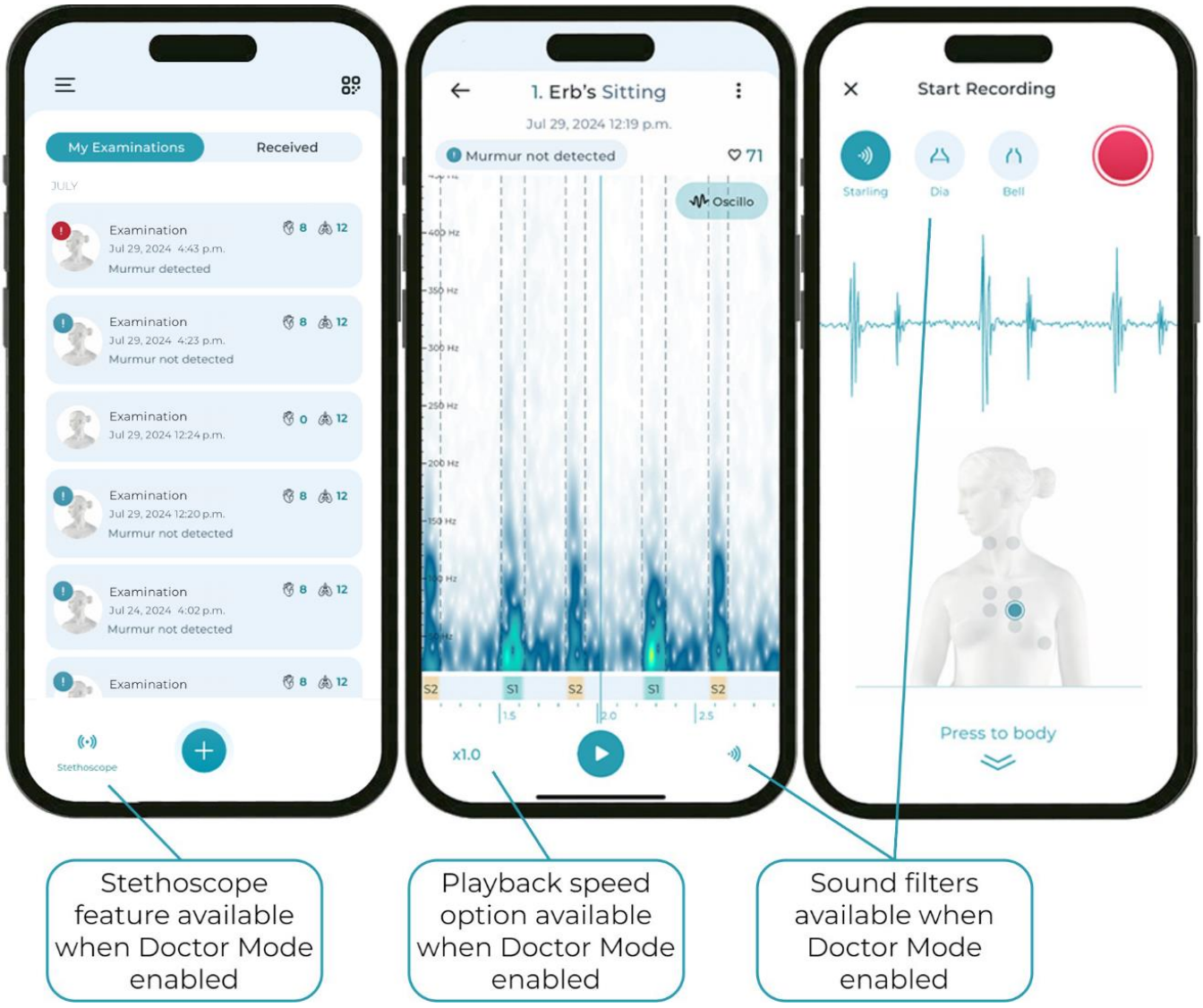


Figure 2. Stethoscope, playback speed, and sound filters enabled with Doctor Mode

5. Stethophone Home screen

By default, your Home screen will be the List of Examinations screen.

It has two tabs: The **My Examinations** tab contains all examinations that you have ever created yourself. The **Received** tab contains all examinations that were sent to you by other Stethophone users.

When Doctor Mode is enabled, the Stethoscope screen will be your Home screen. You can close it when you need to navigate to List of Examinations.

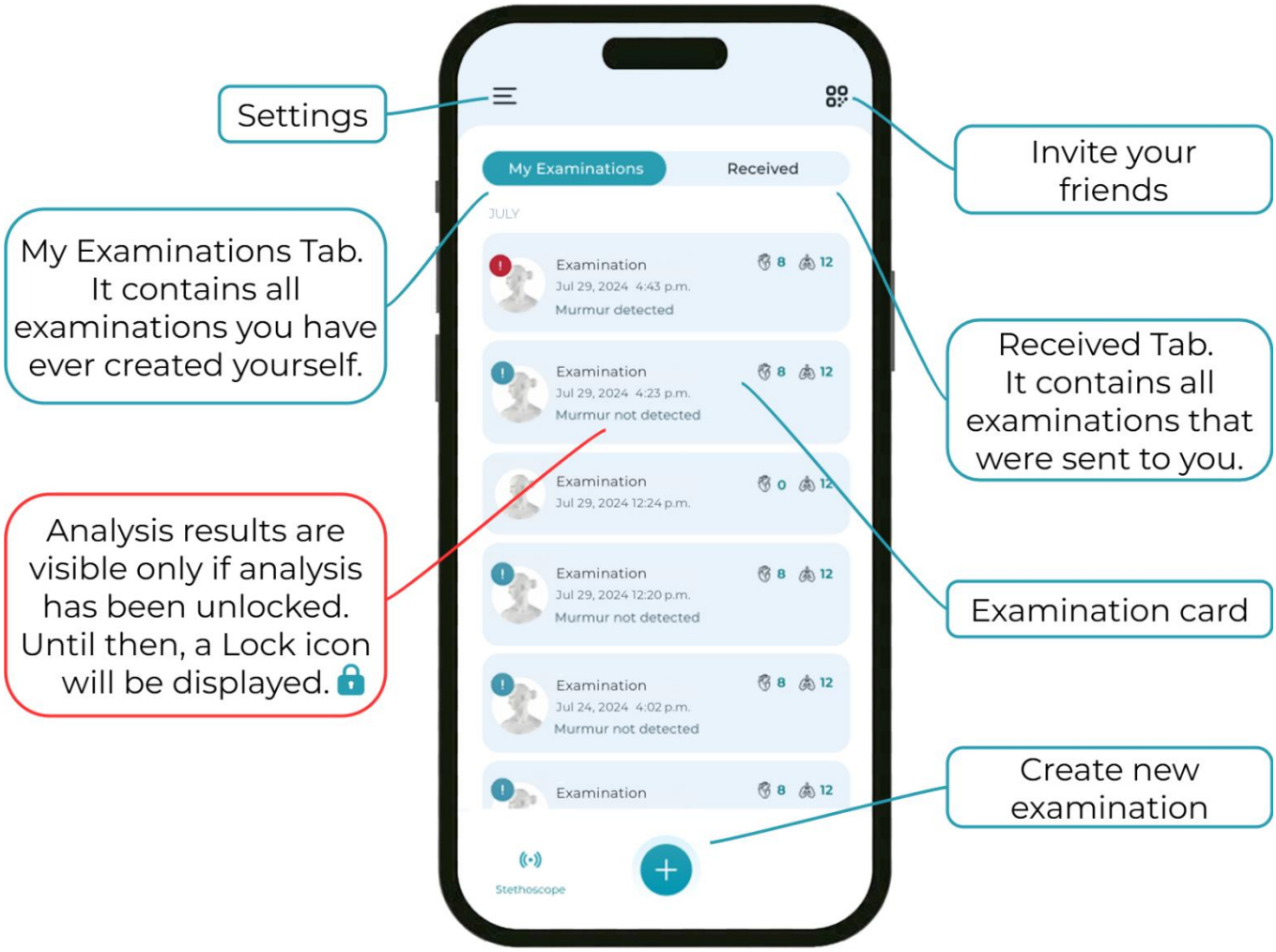


Figure 3. Default Home screen: List of Examinations (Stethophone Pro analysis is unlocked)

6. Using the Stethoscope

If you are using Stethophone with Doctor Mode enabled, the Stethoscope feature is provided to listen to chest sounds in real-time, just as you would do with a conventional stethoscope.

Connect Bluetooth headphones to your smartphone. When prompted by the application, grant microphone access to enable live auscultation sounds through your headphones. An oscillogram allows you to perform a visual analysis of the sounds you hear in real-time.

Stethophone uses the microphone at the bottom of your smartphone to acquire the sound. An animated indicator at the bottom of the screen shows where the smartphone should be placed against the body.

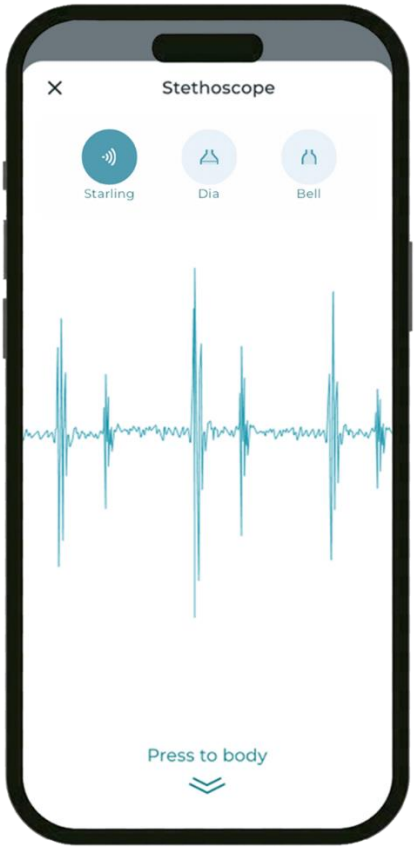


Figure 4. Stethoscope screen

NOTE: The Stethoscope feature does not require an internet connection. It remains available even when you don't have any network or internet connection. Once the application has been initially authorized, the Stethoscope feature will also be available without the need for logging in. However, if you intend to make a recording, you will be required to log in.

6.1. Smartphone placement

Follow these important techniques to ensure quality auscultation results:

- Remove any cables and the smartphone case before using Stethophone.
- Ensure Bluetooth headphones are connected and working, and the smartphone volume is set to about 50%.
- Hold the smartphone gently near the top to avoid hand muscle trembling and movement during the recording.
- Choose the desired auscultation site and press the bottom of the phone to your bare skin. Ensure the bottom of the phone fits snugly and evenly against the body surface without gaps.

- Each screen related to pressing the phone to the chest has an animated sign indicating the correct phone position. It remains visible during the entire session of listening/recording.
- Ensure the smartphone is perpendicular to the point of contact. Contact with your body should remain steady without movement to avoid frictional noise.
- Avoid placing the microphone directly over ribs, as sound quality can be poor when blocked by bone.
- Use light, even pressure to press the smartphone to your body. Excessive pressure may result in artifacts or unwanted sounds.
- While listening, adjust the smartphone's position as needed to ensure that you can hear the heart sound as clearly as possible.

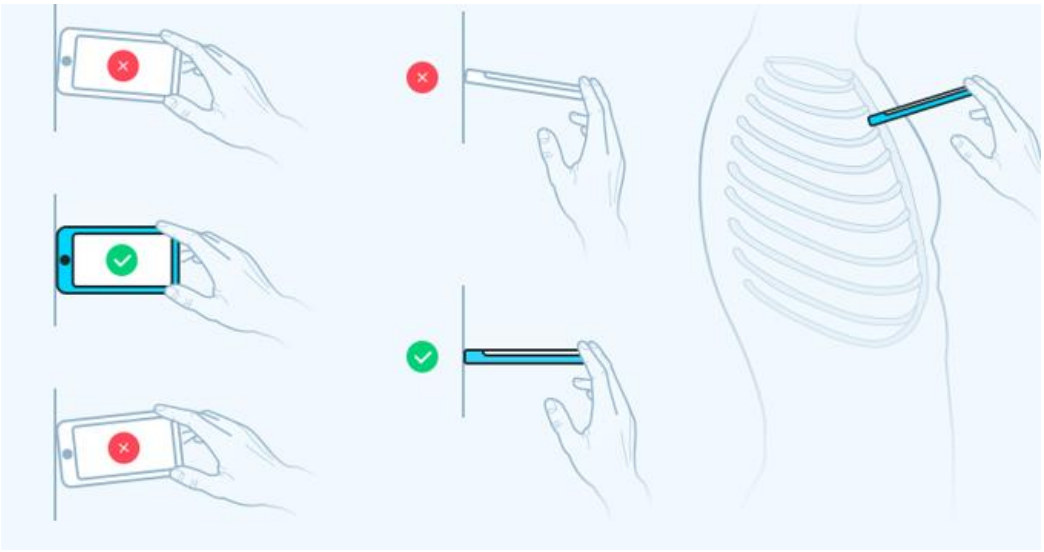


Figure *5*. Smartphone placement

6.2. Sound filters

The sound filters provided with Stethophone enhance the audibility of chest sounds and allow users to select between several frequency ranges, each range best suited for listening to specific details. The following sound filters are available in Stethophone:

- **Starling (Default)** – a filter algorithm that makes subtle sounds of any frequency more audible (60 -1400 Hz.). This filter is intended to eliminate the need to switch between Diaphragm and Bell filters.
- **Diaphragm** – a filter algorithm that highlights heart and lung sounds, making them more audible in ranges between 170-850 Hz. This filter allows

users to listen to high-frequencies selectively with traces of low-frequencies. This filter is good for hearing S1 and S2 splitting, ejection sounds, most lung sounds, and most heart murmurs.

- **Bell** – a standard filter that transmits lower-frequency sounds while removing higher frequencies, its frequency spectrum ranges from 25 to 300 Hz. This filter is recommended for focusing on S3, S4, and diastolic rumbles.

The default setting is the Starling filter. To select a filter, tap the button for the desired filter at any point during use. The active filter will be highlighted.

While selecting the correct filter is important for healthcare professionals, home users can select whichever filter they prefer. Stethophone will store the original sound and physicians will still be able to use any filter they need to assess the sound later.

If you don't use sound filters, you can disable them by turning Doctor Mode off in Settings, and they will be hidden from the screen.

6.3. Volume control

Stethophone offers an in-app volume control that is helpful when heart and lung sounds are faint or when someone just needs a louder sound.

The Stethoscope sound level can be amplified up to 120X for all filters and can be adjusted in increment steps of 5X. The default amplification level is set at 60X for all filters.

Before you change the in-app volume, check that your iPhone volume is set to around 50%. This will allow you to better control the sound and adjust it perfectly to your hearing. Do not make the volume louder than is necessary to hear the sound comfortably.

To increase volume: Swipe up on the Stethoscope screen until the desired volume level is achieved.

To decrease volume: Swipe down on the Stethoscope screen until the desired volume level is achieved.

The volume level will reset each time you reopen the Stethoscope screen.

Figure 6. Adjusting sound amplification level

7. Examination

It is important to record chest sounds when you feel symptomatic, so you can later send or show these recordings to your doctor.

In Stethophone, we refer to a group of heart and lung recordings as an examination. Examinations typically contain one or more sound recordings performed during a single session.

You can record chest sounds from several sites on the body, called **body spots**. Each spot provides doctors with valuable information about how the heart and lungs function in specific areas. Some cardiac symptoms may only be heard at specific spots, so recording more spots provides your doctor with more information for an assessment. As for the lungs, diseases can sometimes affect only specific areas, so recording from various spots is recommended.

When prescribing Stethophone to home users, a healthcare professional may also order to record chest from a specific set of spots (e.g., only spots 2, 3, and 4). It may also be recommended that these recordings are made every few days or when you are feeling symptomatic. Each set of recordings would then be saved as a separate examination. Follow the instructions given by your healthcare practitioner.

Within each examination you can save:

- Up to 8 sound recordings on heart body spots and up to 12 recordings on lungs body spots.
- Disease tags related to your diagnosis.
- Notes describing symptoms or other information relevant to the examination.

7.1. Making a recording

To create an examination and make recordings:

1. Open the My Examinations tab on the List of Examinations screen. When the Doctor Mode feature is disabled, List of Examinations will be your Home screen. If you are using Stethophone with Doctor Mode enabled, your Home screen is set to Stethoscope, so navigate to List of Examinations by tapping the Close button.
2. Tap  to create a new examination.
3. Select a body spot from those displayed on the image of a human body. To switch between heart and lungs, tap on the corresponding buttons /  in the bottom-right corner.

   When recording lungs, tap  /  buttons in the bottom-left corner to switch between front and back of your body.

   Some spots are out of your reach (for example, spots on your back), so you will need help from someone else to record these spots.
4. Select a body position from the dropdown list. The list of body positions includes Sitting, Standing, Lying Face Up, On Left Side, and Squatting. Body positions often influence heart sounds, blood flow, and the clarity of the recording.

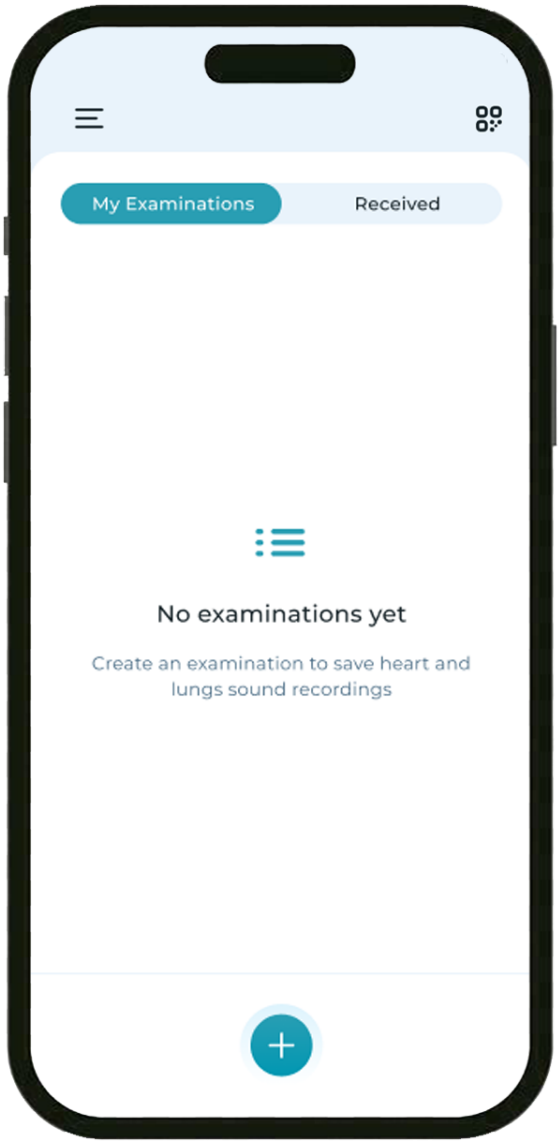


Figure 7. Creating new examination

You can hear the difference yourself by listening to the same body spot while taking different positions. For some symptoms, physicians may recommend a specific position. However, in general, you can select any position that makes you feel relaxed and comfortable and allows you to hear your heart and lungs clearly.

5. Tap Record at the bottom of the screen to open the Start Recording screen.

NOTE: You can record one or more spots for each examination. Once you complete one recording, you can return to the Examination screen and record other body spots by selecting a spot and your position and repeating the recording process. All additional recordings will be saved in the examination.

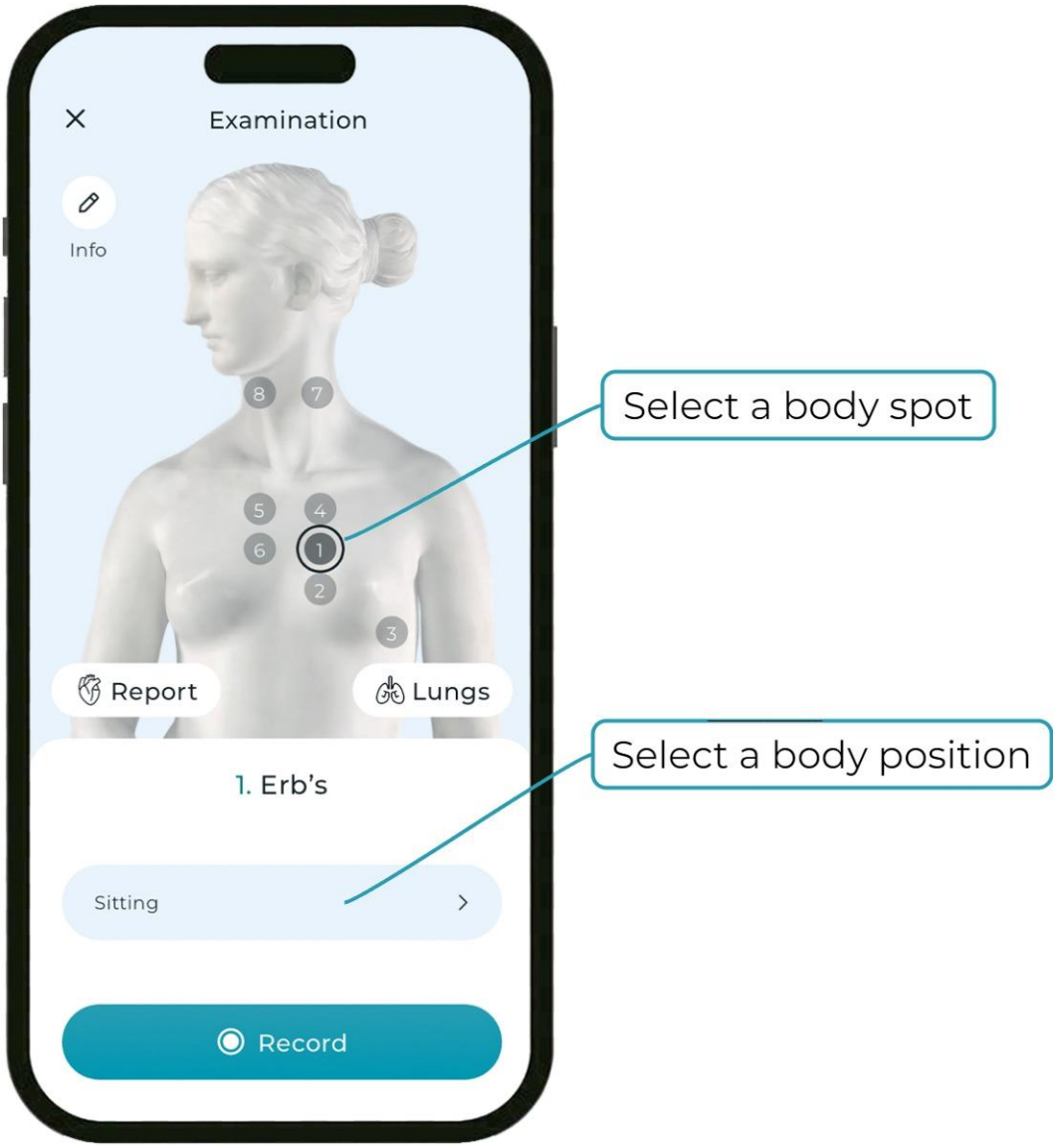


Figure *8*. Selecting body spot and position

6. There is an animated indicator at the bottom of the Start Recording screen where the smartphone should be applied to your body. Ensure headphones are connected and place the bottom of the smartphone at one of the standard body spots as shown below:

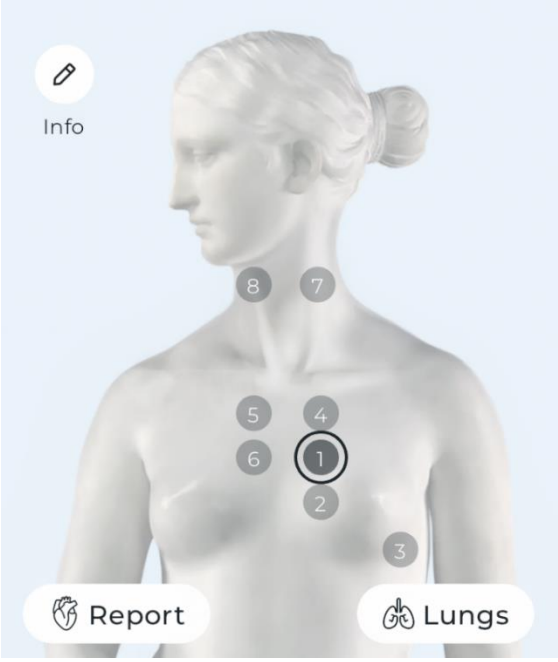
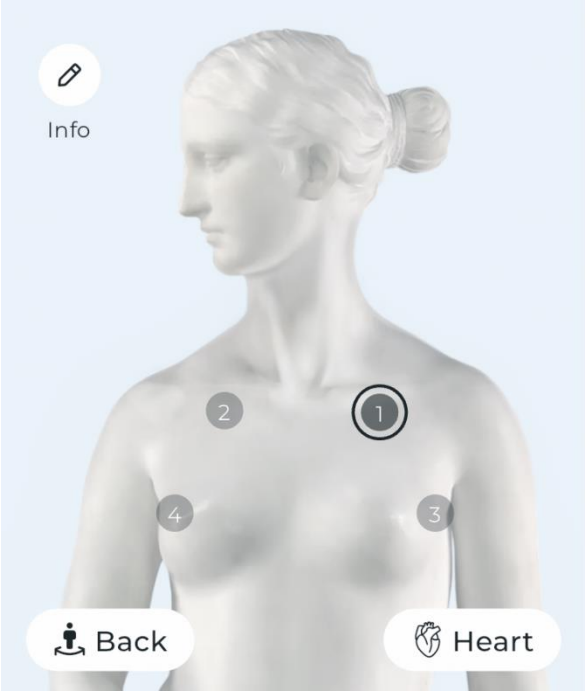


Figure 9. Heart auscultation spots



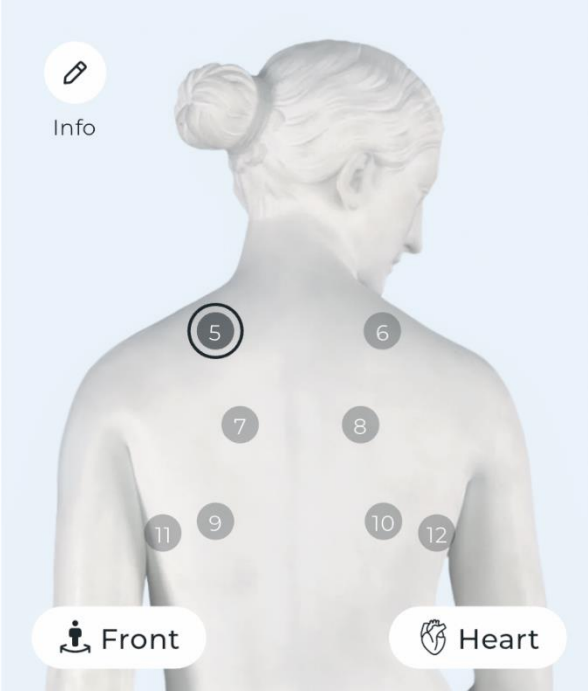


Figure 10. Lung auscultation spots

Follow the recommendations described in section 6.1. Smartphone placement.

7. Listen to the chest sound through your headphones. Listening will help you to find the best spot on your body. Adjust the position of the phone slightly until you can hear strong, clear sound.

   When recording heart sounds, breathe normally and avoid deep breaths. Don't hold your breath, as it can affect the heart rhythm.

When recording lung sounds, breathe slowly through your mouth. Your breath should be deeper than normal, but it should not be noisy.

You might notice that the loudness of the sound is not the same at each spot. This is normal, as it depends on individual body types and body positions. Sounds can also vary from person to person.

NOTE: When Doctor Mode is enabled, the Start Recording screen contains sound filters buttons that allow you to select between several frequency ranges for listening (see section 6.2 Sound filters).

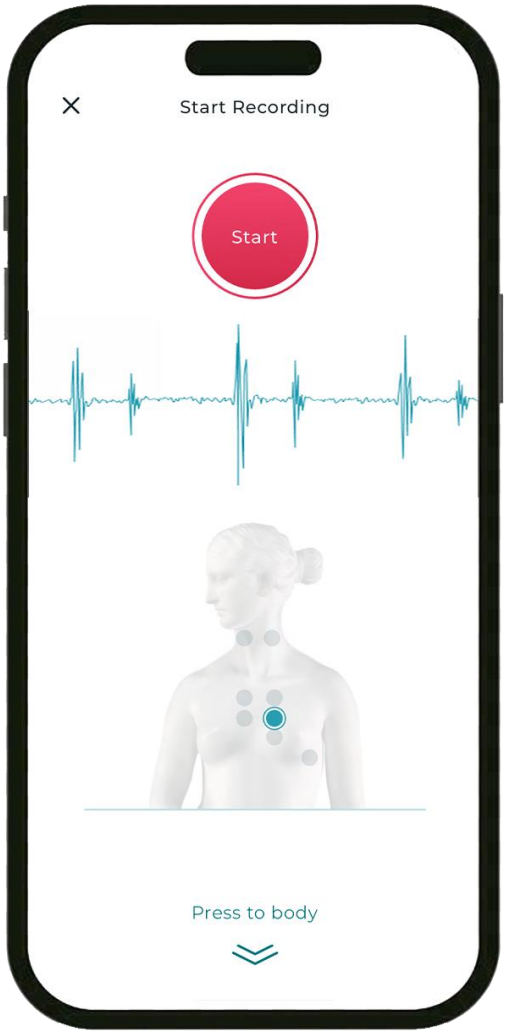


Figure 17. Start Recording screen. Doctor Mode disabled

8. To initiate a recording, tap Start at the top of the Start Recording screen. A 20-second countdown timer will now appear on the screen and recording will begin. The recording duration and playback time of the saved recording is set to 20 seconds. Short recordings under 20 seconds will not be saved.

You will be able to continue listening to the chest sounds with your Bluetooth headphones and see a visualization of the signal on the screen (an oscillogram) while the recording is in progress.

Figure 12. Recording in Progress screen

7.2. Checking the recording quality

Once a recording is completed, Stethophone will automatically check the recording quality to ensure it is sufficient for analysis. This process might take some time.

Good sound quality is necessary for Stethophone to correctly detect murmurs and heart sound timing. Stethophone will never analyze the recordings or parts of recordings that have insufficient quality.

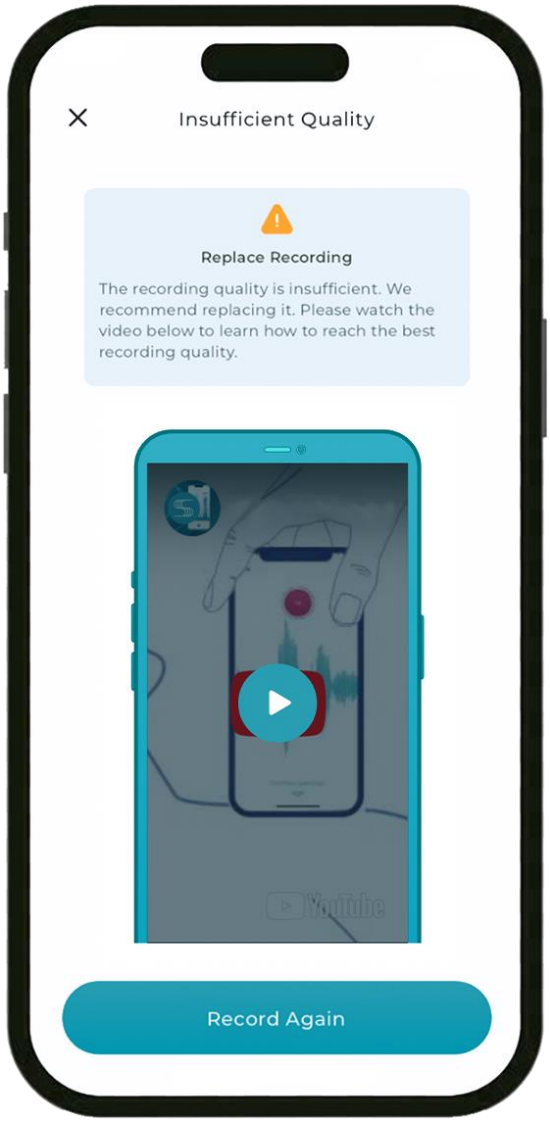


Figure 13. Insufficient Quality screen

If the recording quality is **insufficient** for heart sound analysis, the Insufficient Quality screen will display and recommend that you replace the recording. The Insufficient Quality screen contains a video, which explains how to reach the best recording quality. The Record Again button is available for you to tap to replace the recording.

If you want to keep the recording with insufficient quality, you can simply close the Insufficient Quality screen, however, Stethophone will skip the analysis of this recording.

Regardless of the recording quality, once the recording is processed, you will be taken to the Unlock Results screen. To enter a one-time activation code, tap Unlock, or tap Close to exit the screen.

7.3. Heart sound analysis Rx ONLY

NOTE: The functionality described in this chapter is only available for prescription users. For details, see 7.3.1. Unlocking analysis results in Stethophone Pro.

Stethophone version Pro introduces automatic analysis that is performed on recorded heart sounds to offer decision support to healthcare providers and becomes accessible once it is unlocked with a one-time activation code.

Stethophone automatically analyzes each recording to detect the presence of heart murmurs, and analyzes heart sound timing, for instance in order to locate S1 and S2 heartbeats, commonly known as “lub-dub” sounds, on the timeline, producing a **stethogram**.

NOTE: A stethogram is a collection of audio recordings of chest sounds, their visual interpretation in the form of oscillograms and spectrograms, and a detailed analytical report.

When Stethophone detects the heart murmur, it does not determine whether this murmur is pathological or innocent. If the murmur is detected by Stethophone, you can consult with your physician for further analysis.

S1 and S2 sounds provide valuable information about the heart. Physicians usually listen to these sounds during physical examinations to detect abnormalities. Information collected during examinations can be used by physicians as a basis for diagnosis, referral, or another medical opinion. For home users heart sound timing simply provides easy way to see the heartbeats while listening to them at the same time.

You also can visually review the recording with the detected timing of the cardiac cycle (i.e., S1/S2, systole/diastole) or play back the recording to analyze it with the visualization tools (oscillogram/spectrogram).

NOTE: Stethophone does not diagnose heart problems. “Detected” or “Not detected” is not the same as a diagnosis. Stethophone is not a substitute for professional medical advice, and it does not diagnose, mitigate, prevent, treat, or cure any conditions. Information provided by Stethophone requires further medical evaluation by a physician. If you are experiencing chest pain, pressure, tightness, shortness of breath, or any other sensations that you suspect may be a medical issue, call emergency services.
You can familiarize yourself with what Stethophone can detect in **Settings >> User Guides**.

7.3.1. Unlocking analysis results in Stethophone Pro

In Stethophone Pro, heart sound analysis results are locked to prevent unauthorized use without a valid prescription. For users without a prescription, these results will appear with a Lock icon:

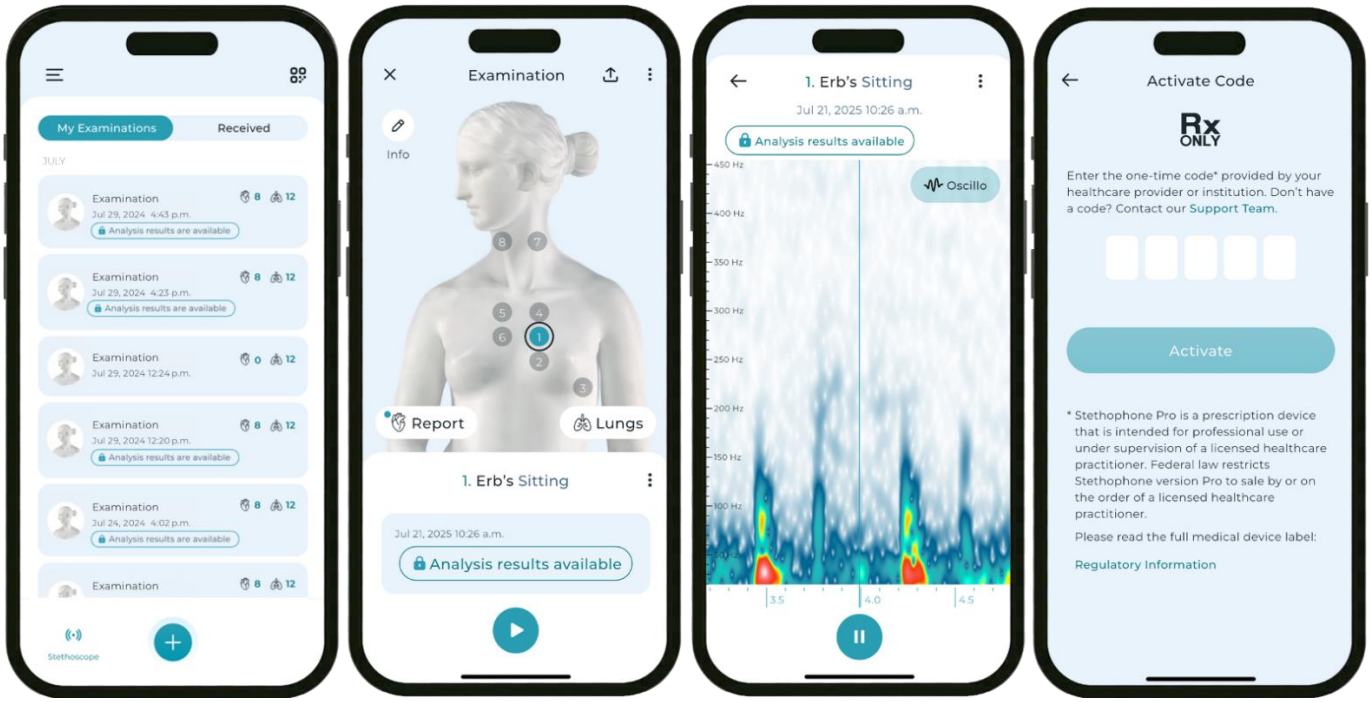


Figure 14. Locked analysis results for users without prescription

You can unlock analysis results with a one-time activation code.

- **Healthcare professionals**: Email the manufacturer at support@stethophone.com to learn more about receiving the activation code.
- **Patients/non-medical users**: Please ask your healthcare professional for a prescription and a one-time code.

Once you have your one-time code, follow these steps to unlock your analysis results:

1. Open an examination: either create a new examination with at least one recording or tap any existing examination in the List of Examinations that displays a Lock icon .
2. Tap the card labeled “Analysis results are available” at the bottom of the Examination screen.
3. Tap Unlock at the Unlock Results screen and enter the one-time activation code.

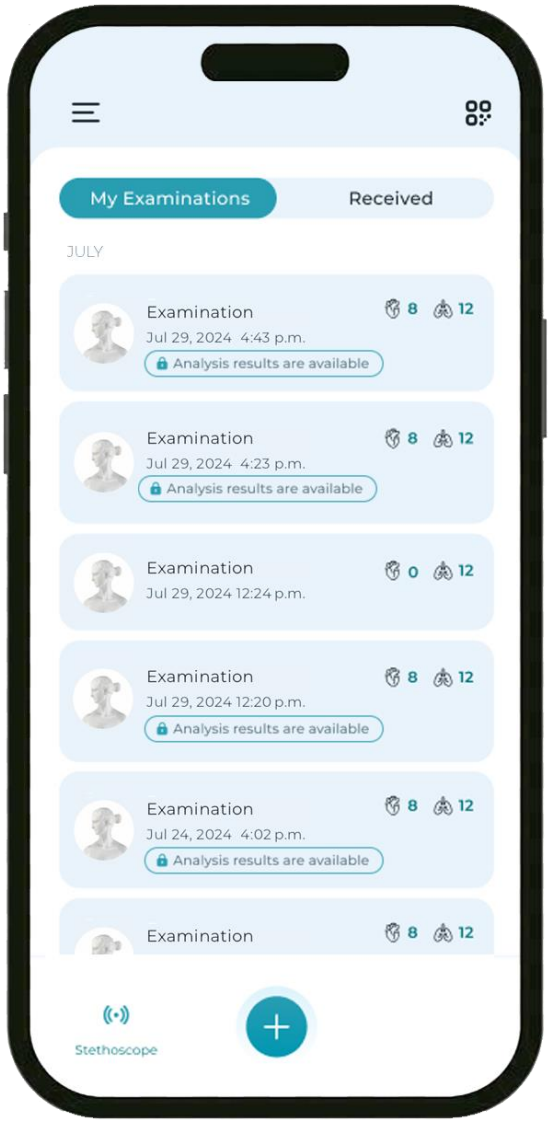


Figure 15. To unlock analysis results, tap any examination marked with a Lock icon

7.3.2. Automated individual report

Once the recording is completed and the recording quality verified as being sufficient for analysis, you will be immediately taken to the Individual Report screen to review the heart sound analysis results for the recorded spot.

NOTE: You can also access the Individual Report screen at any time:
- from the Examination Report screen by selecting an individual report from the list,
- from the Examination screen by selecting the recorded spot and tapping the results card on the bottom of the screen.

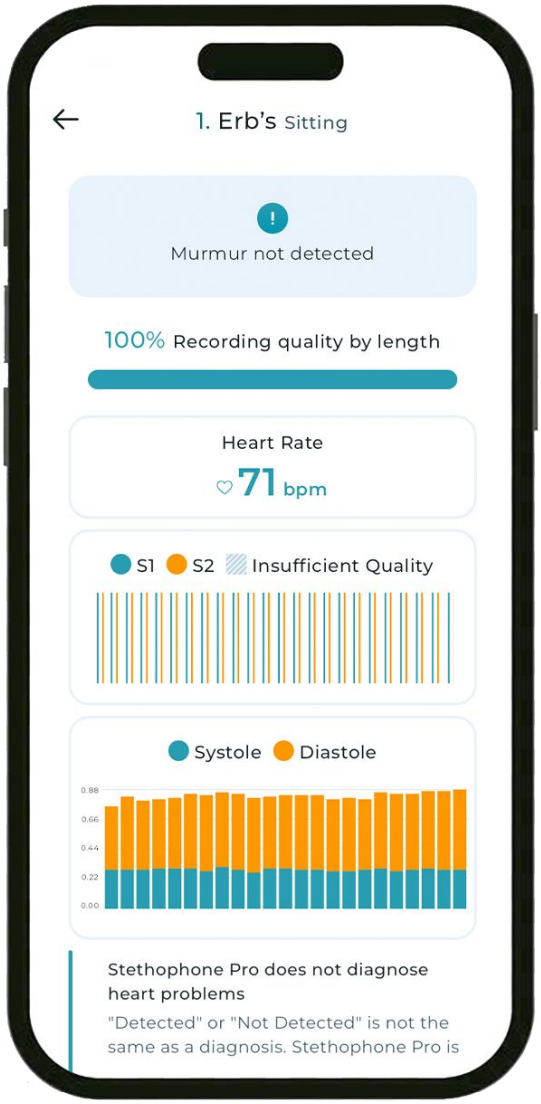


Figure 16. Individual report with murmurs and heart cycle elements detected

The report is a concise way to visualize the quality of the recording and the areas where quality is insufficient, and well as the summary of basic assessment of that sound recording.

On the Individual Report screen, tap S1/S2 or Systole/Diastole graphs to see the expanded view of them.

Stethophone detects timing of the cardiac cycle.

The cardiac cycle always contains main elements like S1 and S2 sounds, systole and diastole. It can also have additional elements like heart murmurs etc.

S1 and S2 are two short percussive or clicking sounds – your heartbeats.

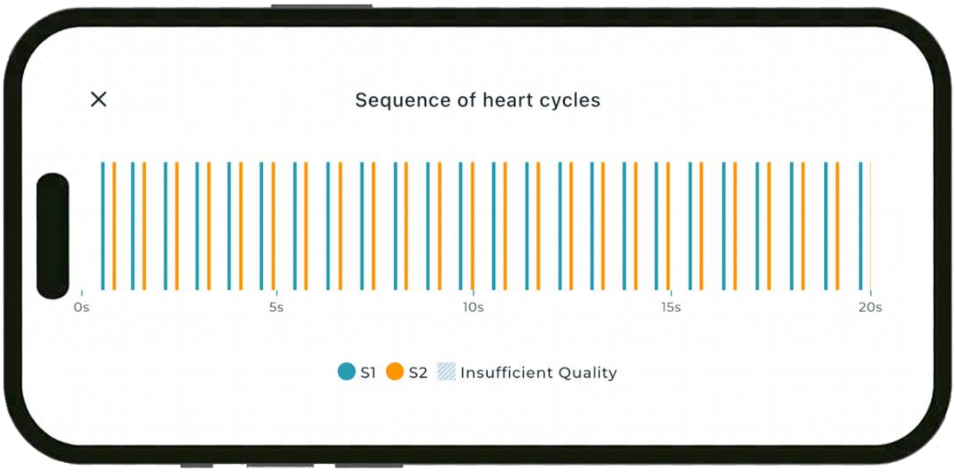


Figure 17. Sequence of heart cycles (expanded graph view)

Systole and diastole are two phases of the cardiac cycle.

The period of robust contraction and pumping of blood is called systole. It is between S1 and S2.

Diastole is the period between S2 and next S1, during which the heart muscle relaxes, and heart ventricles fill with blood.

Generally, with normal heart rate diastole is longer than systole. The length of those bars is always a bit different and that is normal, your every beat is unique.

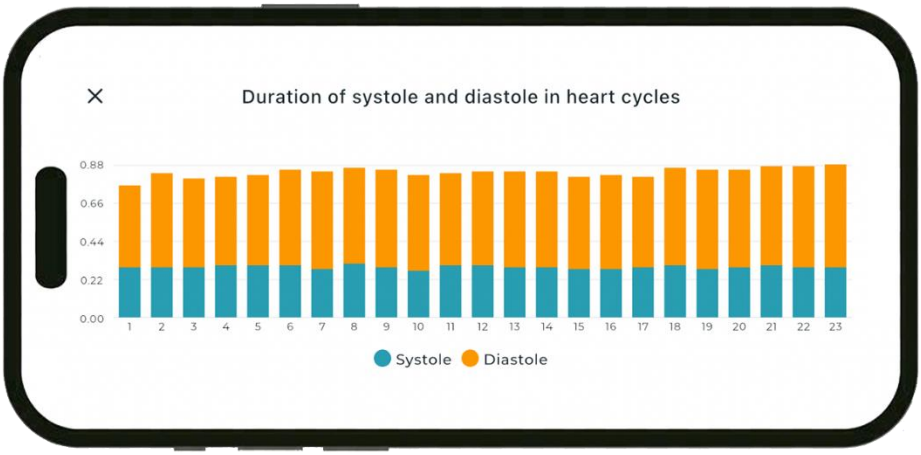


Figure 18. Duration of systole and diastole (expanded view)

Looking at these two graphs, you can visually analyze them to see any abrupt or irregular pattern that could potentially be a sign of the underlying heart issue. If you notice any irregularities – show them to your physician. Stethophone does not do the assessment or diagnosis for you, it only visualizes your heartbeats.

7.4. Playing back saved recordings

On the Examination screen, tap Play to open sound visualization to play back the recording with Oscillogram and Spectrogram views.

NOTE: Prescription users can also open sound visualization from the Individual Report screen. For users with unlocked automated analysis (prescription users), the system will highlight S1 and S2 heart sounds on the visualization. For details, see 7.3.1. Unlocking analysis results in Stethophone Pro.

The spectrogram will be displayed, allowing you to listen to the recording and see your heartbeats on the timeline. Visualization will help you to see the heartbeats at the same time as you are listening to them.

If Doctor Mode is enabled, you can also apply sound filters to the recording playback by tapping the current Filter icon ( ) on the lower right and selecting a new filter from the list. The recording can be played at a slower speed to listen to the recorded sounds more closely. To adjust playback speed, tap the Speed x1.0 icon on the lower left and the speed will change on each tap.

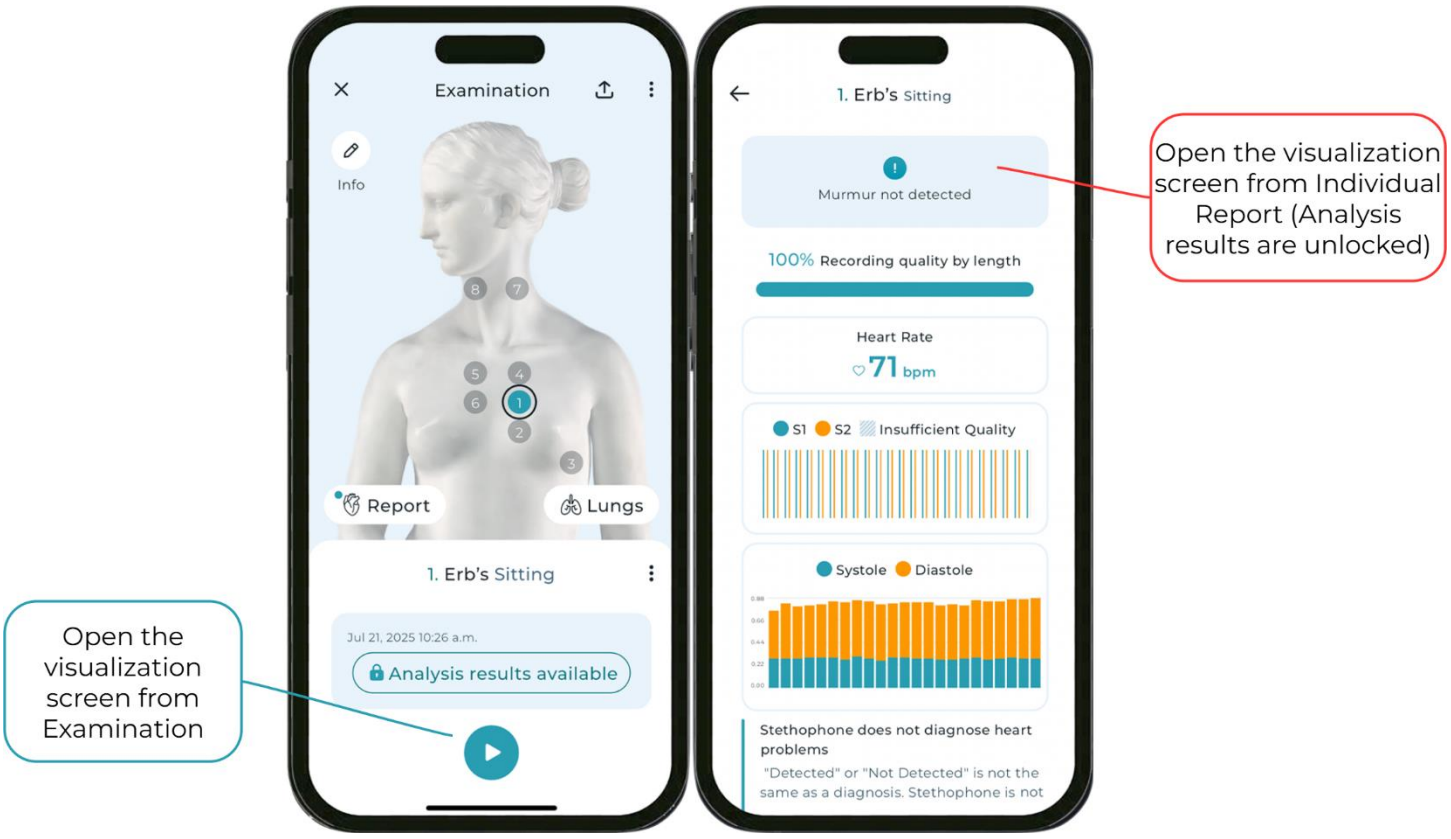


Figure 19. Open the visualization screen

To switch between Oscillogram and Spectrogram, tap the Spectro or Oscillo button, depending on the currently selected visualization type Spectro / Oscillo.

To **pan** graphs left/right or move recording playback backward/forward, drag your finger horizontally across the screen.

To **zoom** the oscillogram and spectrogram use the pinch open/close gesture. If the display and playback settings i.e., scroll, zoom, speed, and filter options are applied to one of the graphs, the same settings will be applied to the other graph when switching between them.

To **replace** or **delete** unwanted or insufficient quality recordings, select the body spot with the recording and tap the Recording options button ⋮ on the Examination or Spectrogram/Oscillogram screens. Once the Recording bottom sheet is displayed, select the Record Again or Delete Record option.

Figure 20. Saved recordings playback. Oscillogram/Spectrogram view. Analysis results are locked. Doctor Mode enabled

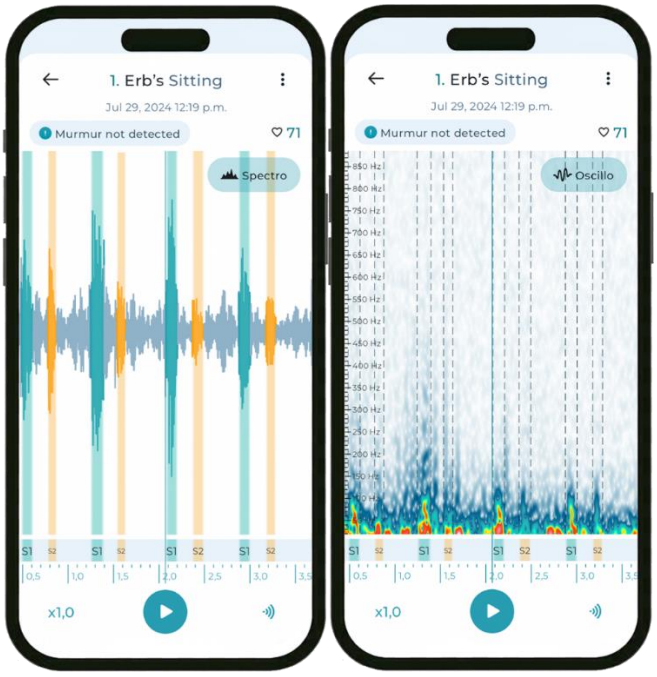


Figure 21. Saved recordings playback. Oscillogram/Spectrogram view. Analysis results are unlocked. Doctor Mode enabled

7.5. Using sound visualization

Sound visualization is a powerful information tool that illustrates the loudness and frequency of a sound, and the presence or absence of different symptoms and artifacts. The Oscillogram and Spectrogram views are implemented in Stethophone to perform visual analysis of auscultation sounds.

NOTE: S1 and S2 heart sounds will be highlighted only when automated analysis is unlocked (available to prescription users). Users without a prescription will see the visualization without highlights. For details, see 7.3.1. Unlocking analysis results in Stethophone Pro.

The oscillogram is used for visualizing real-time and recorded sounds. Its waveform is dependent on the applied filter.

The spectrogram is used to visualize recorded sounds. It provides a more detailed visualization of the same sound. Applied filters do not impact the spectrogram display.

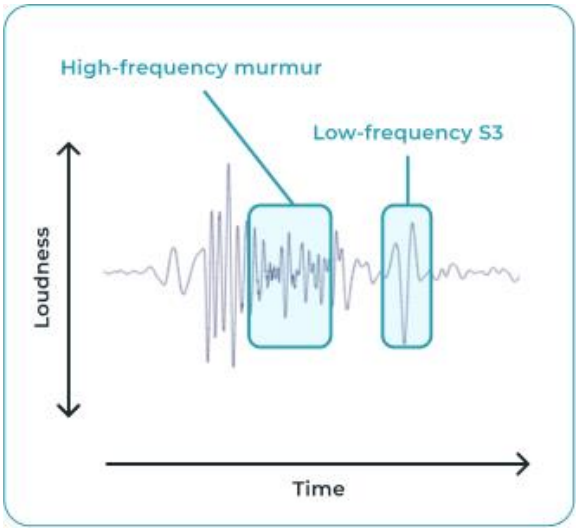


Figure 22. Oscillogram view (Analysis results are locked)

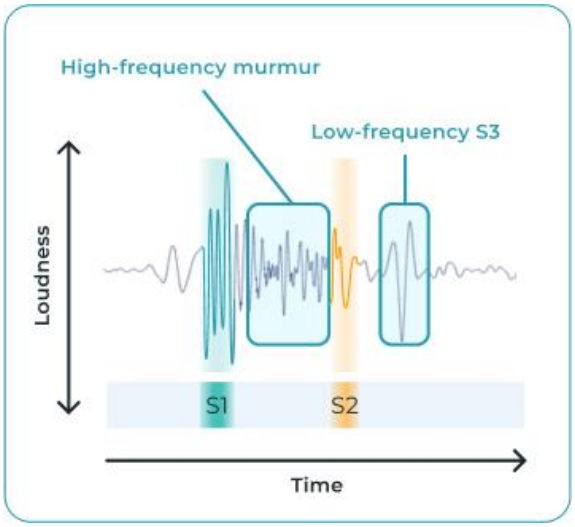


Figure 23. Oscillogram view (Analysis results are unlocked with S1 and S2 sounds highlighted)

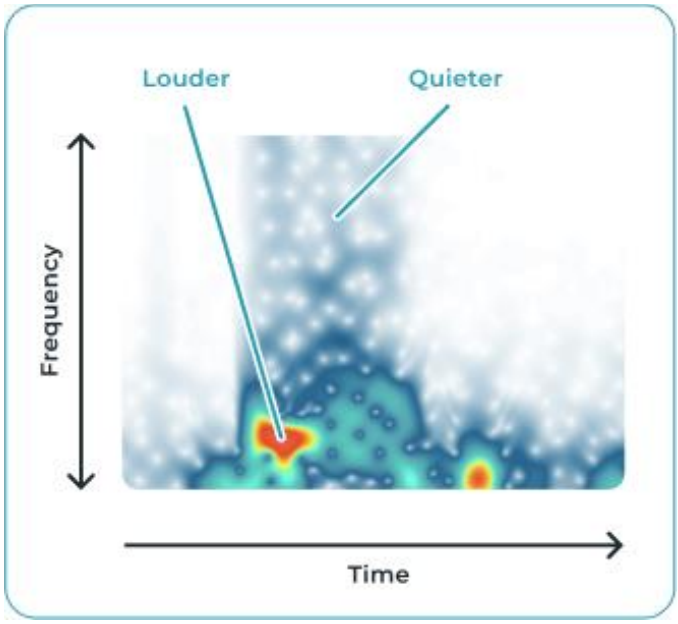


Figure 24. Spectrogram view (Analysis results are locked)

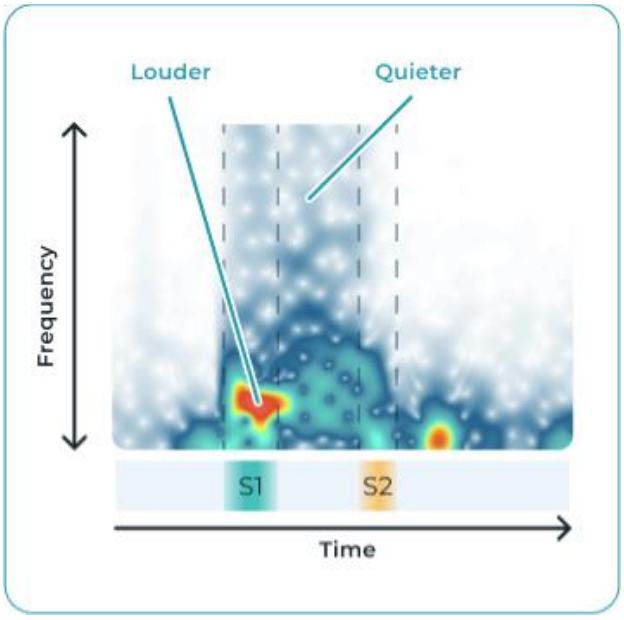


Figure 25. Spectrogram view (Analysis results are unlocked with S1 and S2 sounds highlighted)

The Spectrogram view is especially effective for identifying low-frequency sounds (such as an S3 heart sound). Below you can see how the spectrogram view could be used to analyze body sounds and find different abnormalities:

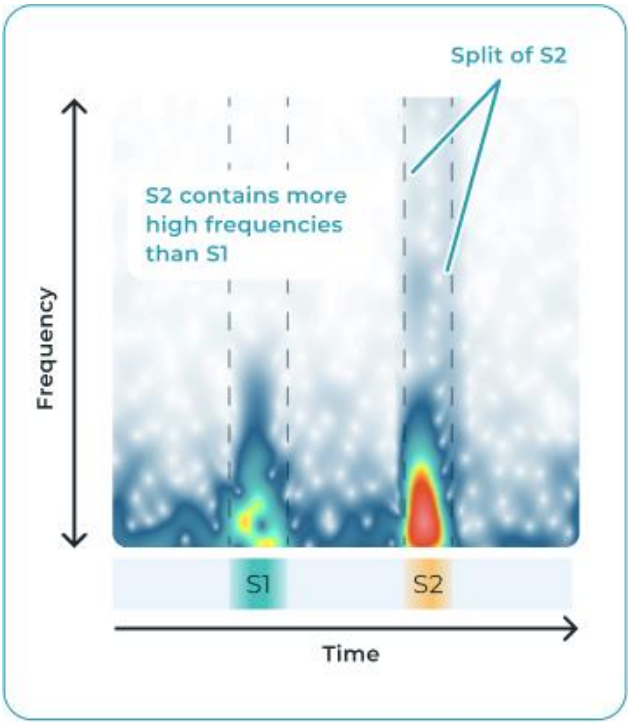


Figure 26. Spectrogram. Normal heart sound

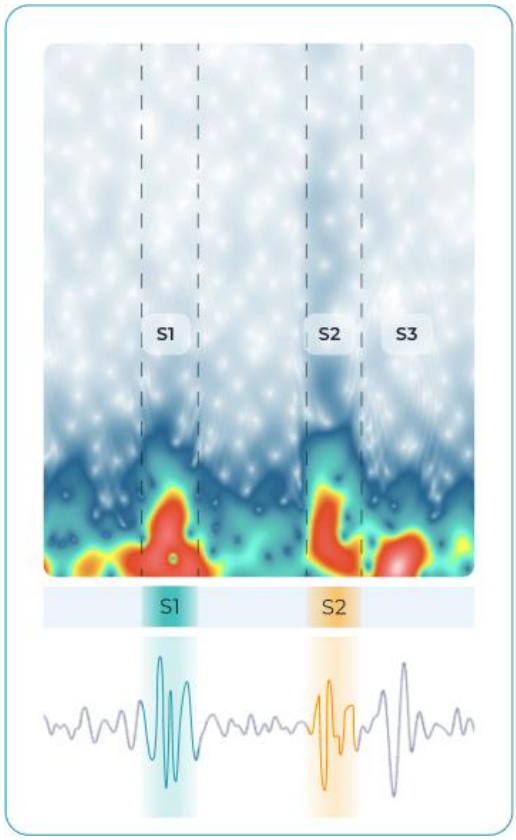


Figure 27. S3 gallop, heart failure

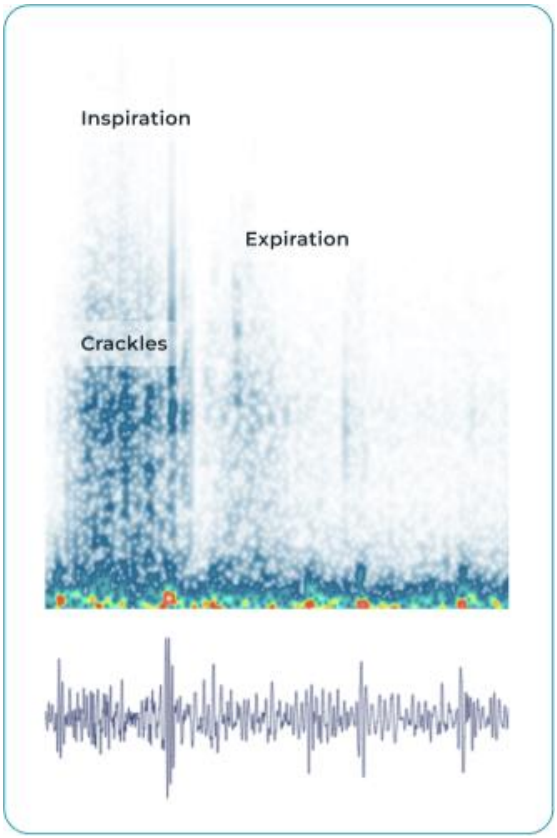


Figure 28. Interstitial lung disease

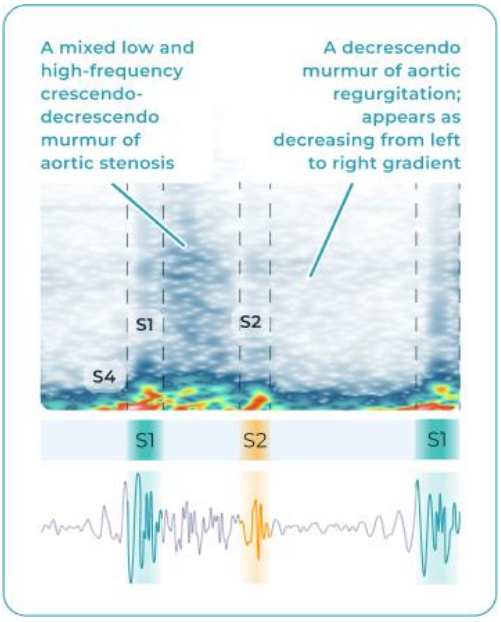


Figure 29. Aortic stenosis and regurgitation

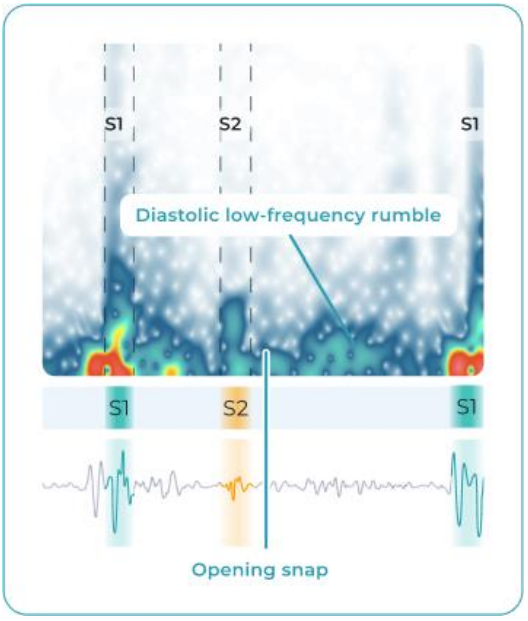


Figure 30. Mitral stenosis

Stethophone automatically detects S1 and S2 sounds and highlights them on the timeline of the recording to help physicians in their search for any abnormalities.

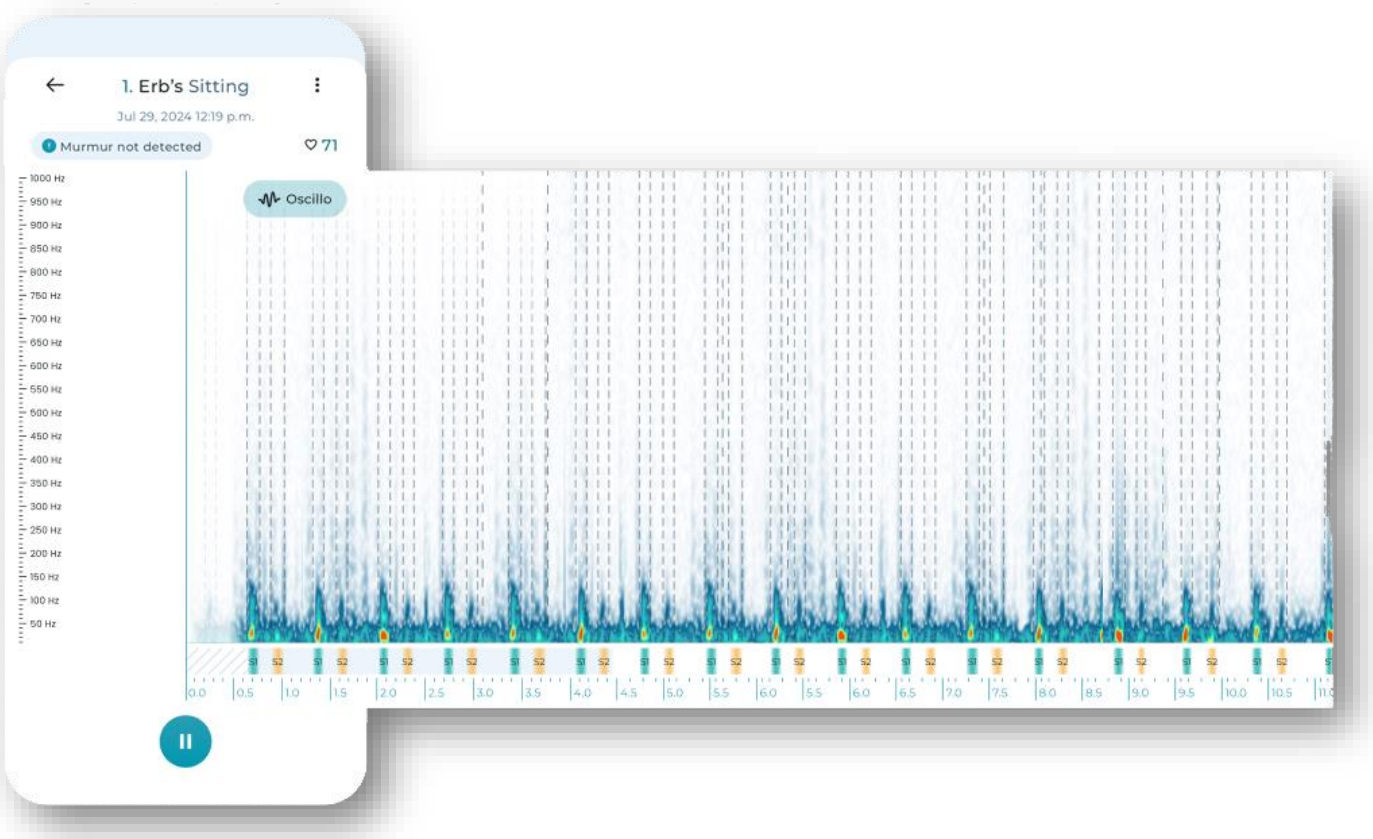


Figure 31. Expanded spectrogram with S1 and S2 sounds detected

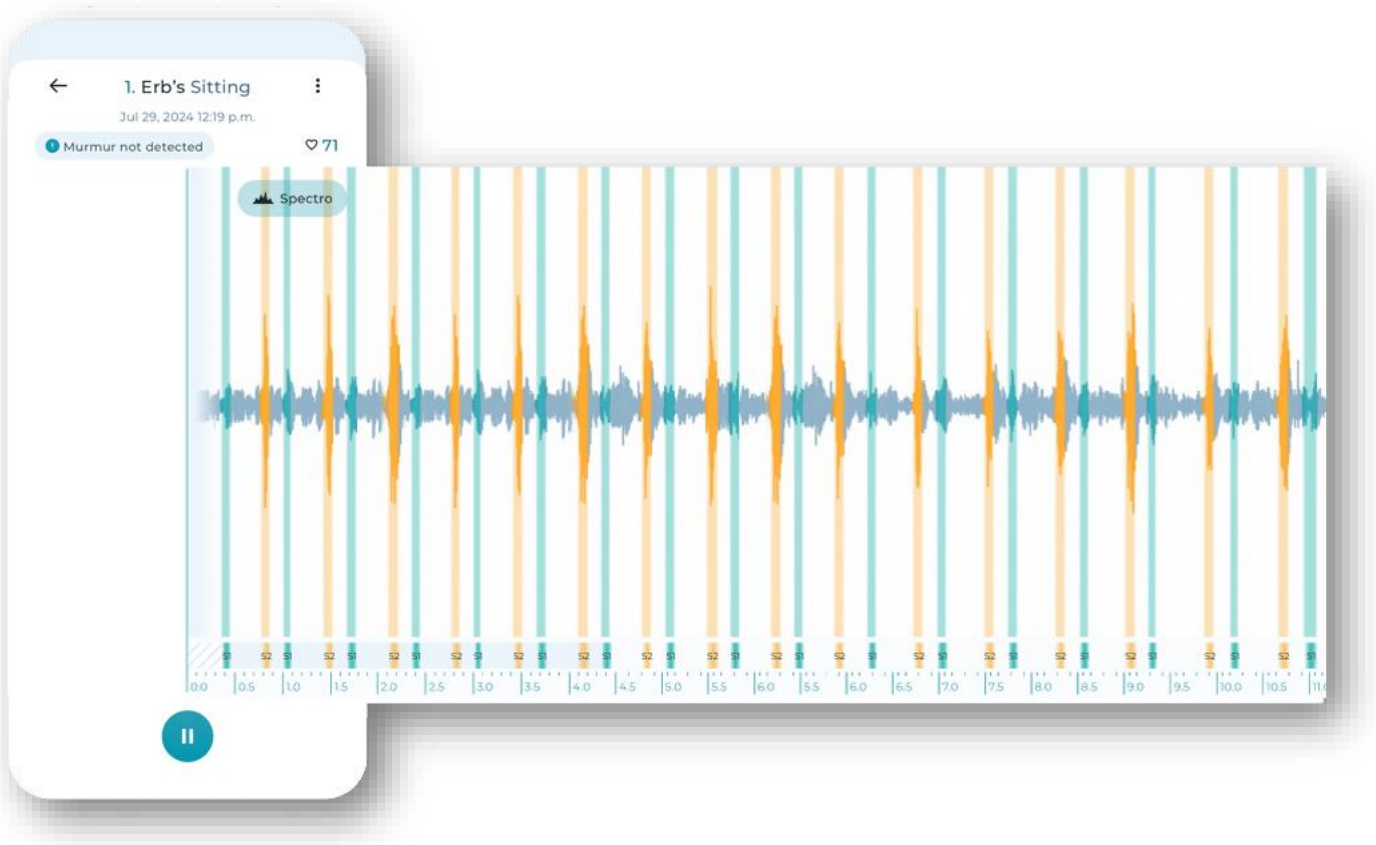


Figure 32. Expanded oscillogram with S1 and S2 sounds detected

7.6. Examination report Rx ONLY

NOTE: The functionality described in this chapter is only available for prescription users. For details, see 7.3.1. Unlocking analysis results in Stethophone Pro.

Once you make a recording, the Report button on the Examination screen will be highlighted with a blue dot. You can tap on Report to open the Examination Report.

The Examination Report is a summarized way to review the results of analysis of all heart spots that were recorded during the selected examination. Please note that lung spots are not part of this report as Stethophone currently does not offer the analysis of lung recordings.

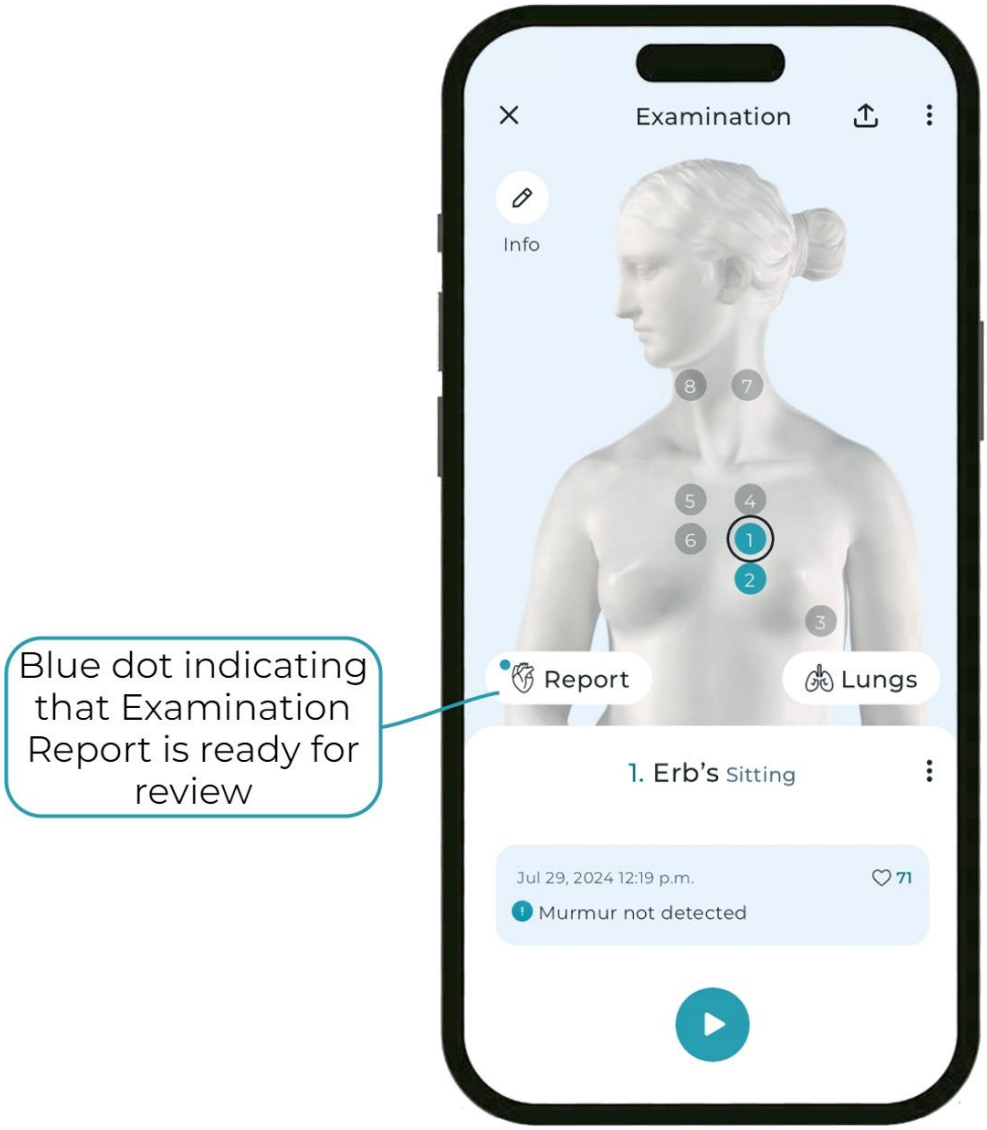


Figure 33. Blue dot indicating that Examination Report is ready for review

Each report card contains the body spot name, the date when the recording was made, heart rate, and the results of the automated heart sound analysis.

By tapping on each individual report, you can review analysis results for each recorded spot. After reviewing your examination results, you can tap Send Examination to send it to your physician (see also 7.9. Sending examinations), tap Download PDF Report to download the examination as a PDF file for your medical records (see also 7.11. Downloading PDF reports), or close the report screen to go back to the examination.

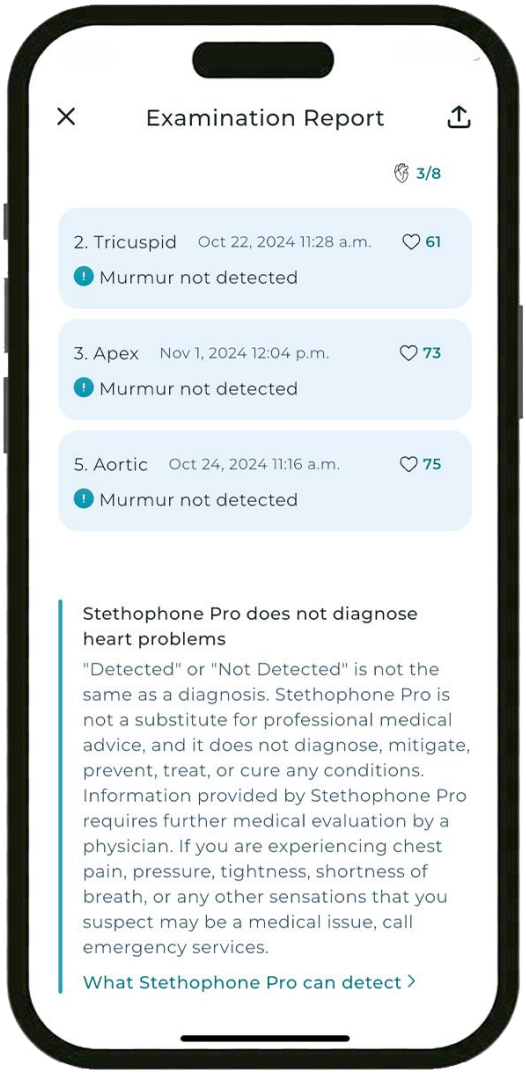


Figure 34. Examination Report screen

7.7. Providing additional information

You can provide your doctor with more details about yourself and about this examination when you fill out relevant fields on the Information screen. To navigate to the Information screen, tap the Info icon in the top-left corner of the Examination screen.

Rename your examination so you can easily identify it later in the list of examinations (e.g., After a workout). Enter your age and weight. Add known diseases and any other valuable information. For example, you can describe your symptoms that you are experiencing, it will help your doctor to assess your examination. You can save such information in the text notes on this screen and describe what exactly happened and when.

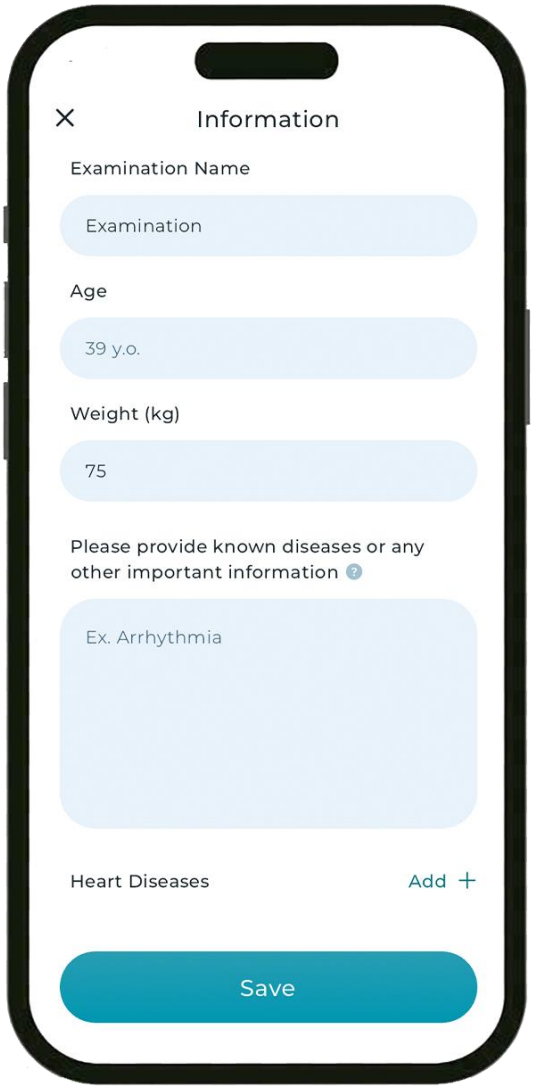


Figure 35. Information screen

Once any additional information is saved within the examination, the Info icon will be marked with a blue dot. The blue dot is not present if the Information section is still empty.

NOTE: Do not keep personal identification information in the Info screen. Exclude any identifiable information if you plan to send examinations to the third party or download as a PDF report.

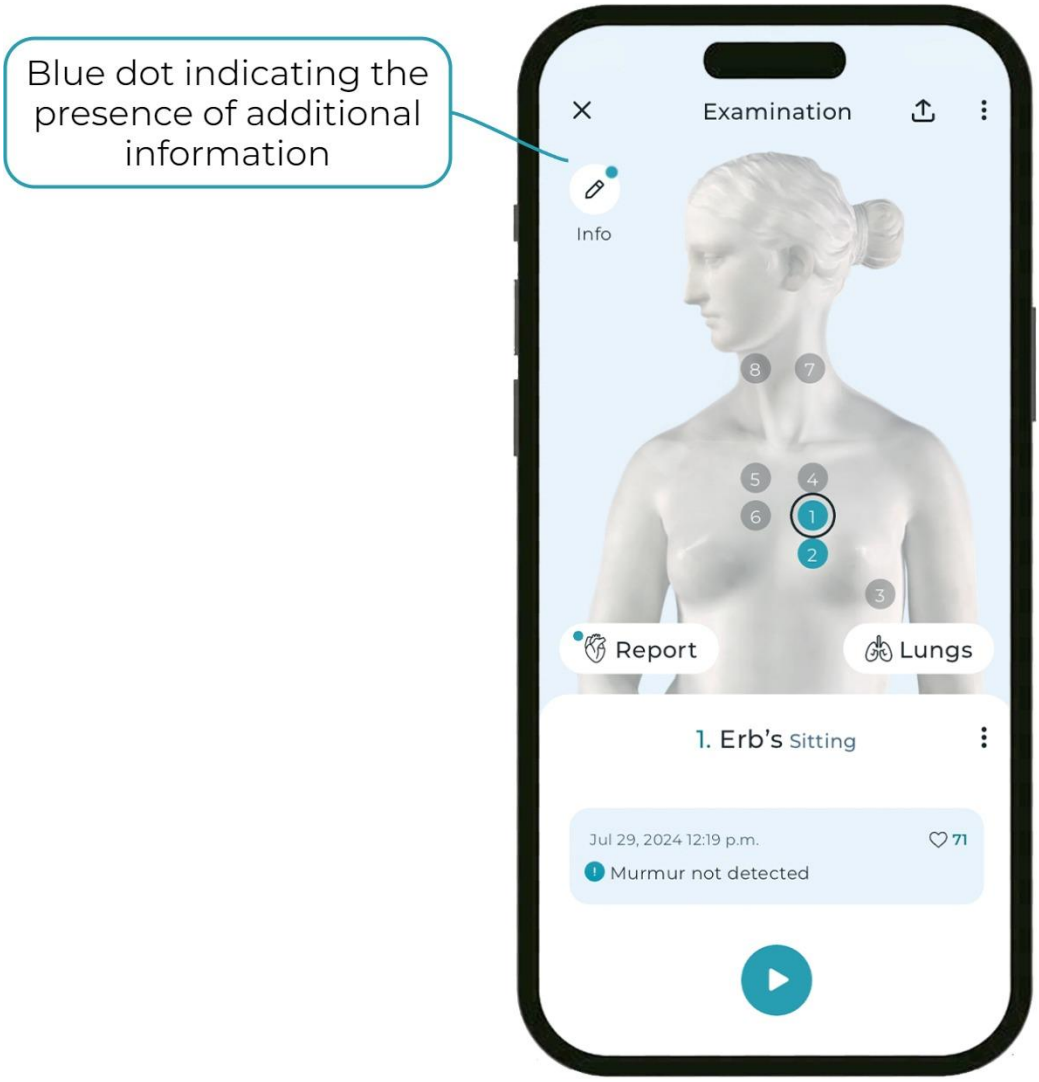


Figure 36. Blue dot indicating the presence of additional information

7.8. Accessing saved examinations

Open the List of Examinations screen. This is your main screen when you log in to Stethophone. If you have the Stethoscope screen or the Examination screen open, close them to access List of Examinations.

My Examinations tab on the screen contains a complete list of all examinations you have ever recorded. Examinations are sorted by the Date Modified so that the most recently modified examinations are always at the top of the list.

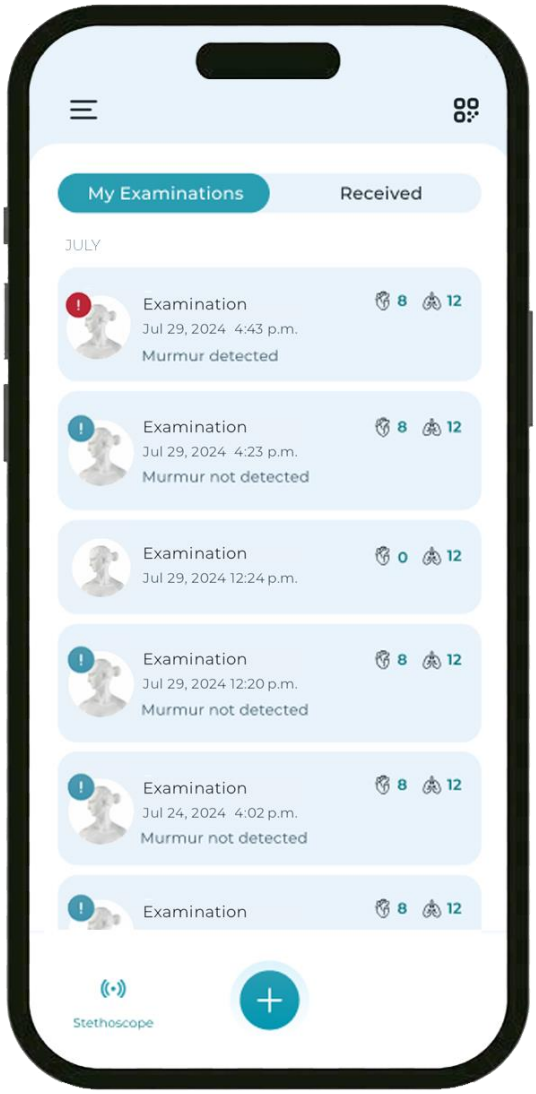


Figure 37. My Examinations

The examination card contains the examination name, the date when the examination was created or modified, the number of heart and lung recordings saved in this examination, and, if applicable, the results of the automated heart sound analysis.

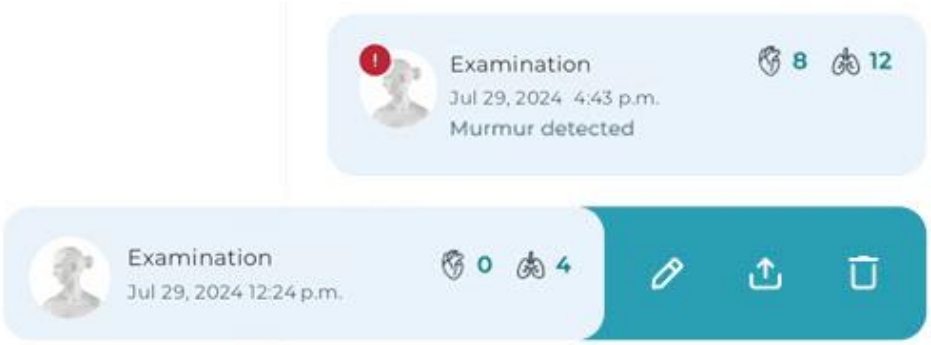


Figure 38. Examination card

To **open** an examination, tap the selected examination card.

To **edit** an examination, swipe left on the examination card and tap Edit or open the examination and tap either the Info icon or tap ⋮ and select Edit Examination.

To **delete** an examination, swipe left on the examination card and tap Delete, or open the examination and select the Delete Examination option from the ⋮ menu on the upper right.

To **send** an examination to another person or **download** it as a PDF report, swipe left on the examination card and tap Send/Download. You can also send or download it from inside the examination or from the Examination Report screen (see section 7.9. Sending Examinations and 7.11. Downloading PDF reports).

7.9. Sending examinations

When your examination has at least one saved recording, you can send the examination to another person. For example, you can send your examination to your physician for assessment.

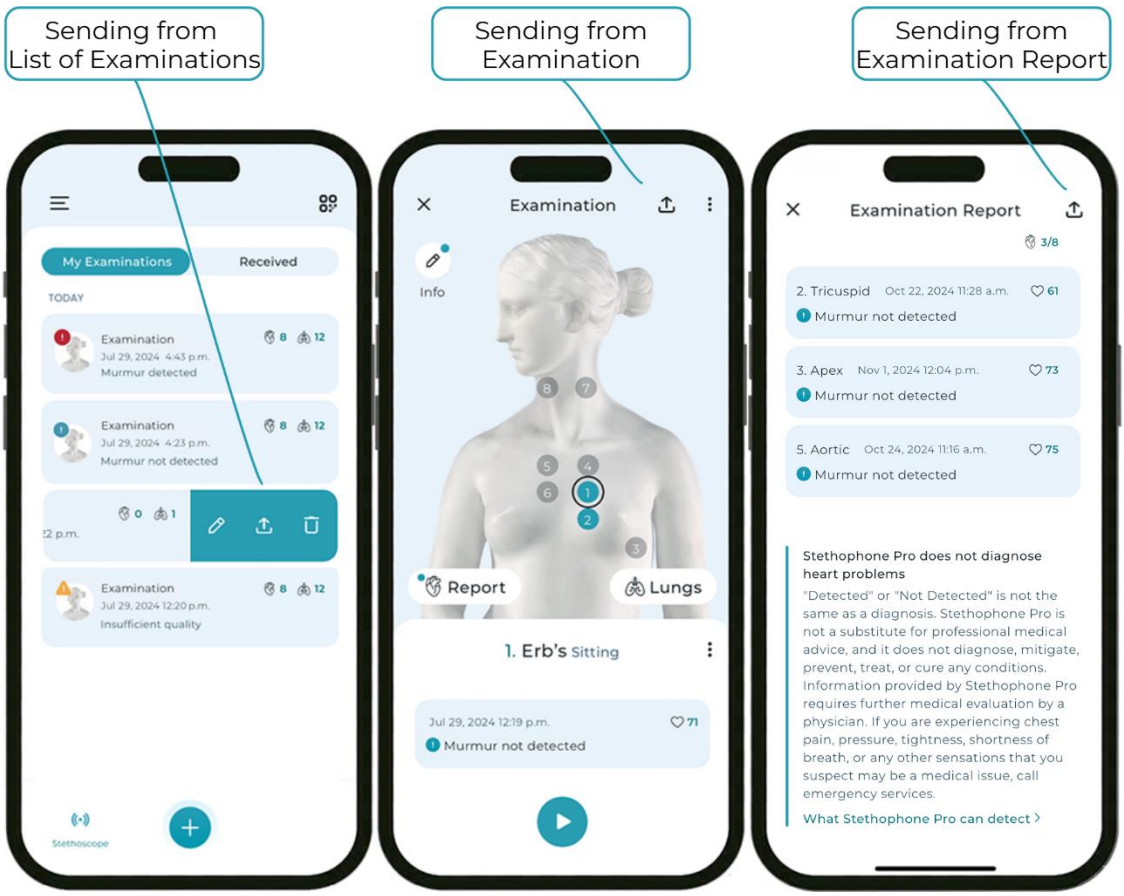


Figure 39. Sending your examinations

There are three ways to send your examination:

- Swipe left on the examination card on the List of Examinations screen and tap Send/Download ⬆.
- Send the examination directly from the Examination screen by tapping Send/Download ⬆ in the upper-right corner of the screen.
- Send the examination from the Examination Report screen by tapping Send/Download ⬆ in the upper-right corner of the screen.

Switch the toggle to confirm that you are sending your own data or you have the permission of the data owner to send it for them, you have read and understood the Acknowledgements, and the information you are sending is truthful and correct to the best of your knowledge. Please ensure you open the Acknowledgements link and familiarize yourself with this important information before switching the toggle.

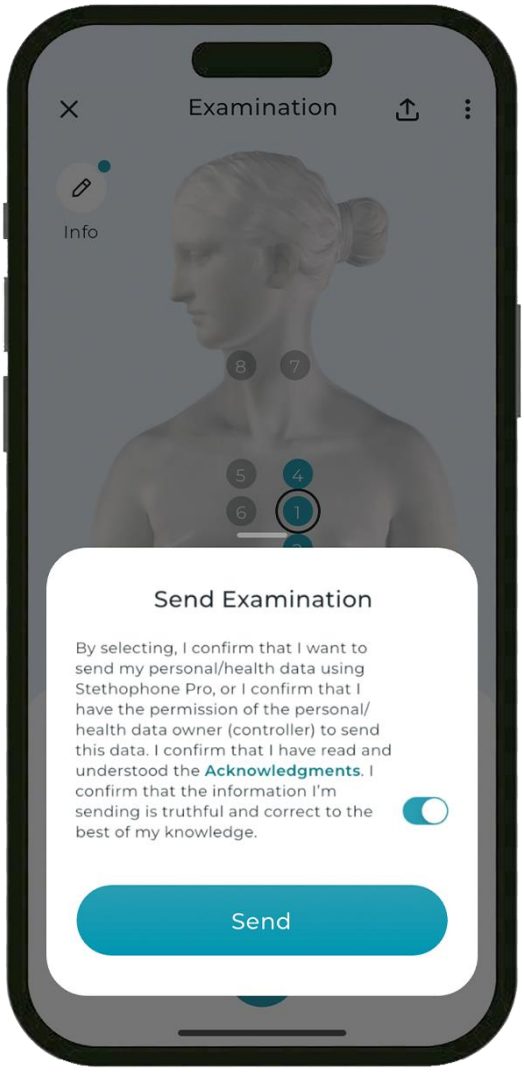


Figure 40. Sending confirmation

When you tap Send, the Stethophone application will create a link that you can send to the desired recipient via the standard iPhone functionality for sending/sharing.

Your phone will present you with a selection of available external applications you can use to send your examination link (email, iMessage, etc.). Follow your phone's instructions from there.

NOTE: You are sending only the copy of your examination. If you update your examination after sending, the recipient will not receive your updates unless you send the examination again. If you delete your examination after sending, it will not affect any information that has already been sent to another person.

7.10. Receiving examinations

When you receive an examination link from another person, simply tap the link and it will open your Stethophone application and present you with the examination for review. It will also automatically add the received examination to your Stethophone account. Once the received examination link is used, it will expire.

Examinations you have received will appear as examination cards in the Received tab of the List of Examinations screen.

Each examination card contains the examination name; the date when the examination was received and, if applicable, later modified; the sender's email address; the number of heart and lung recordings saved in the examination; and, if applicable, the results of the automated sound quality analysis and the results of the heart sound analysis.

You can listen to the recordings in the examination and edit the examination information. However, you cannot modify or replace recordings made by another person.

You can delete the examination when you no longer need it. If you edit or delete the received examination, it will not impact the original examination on the sender's account.

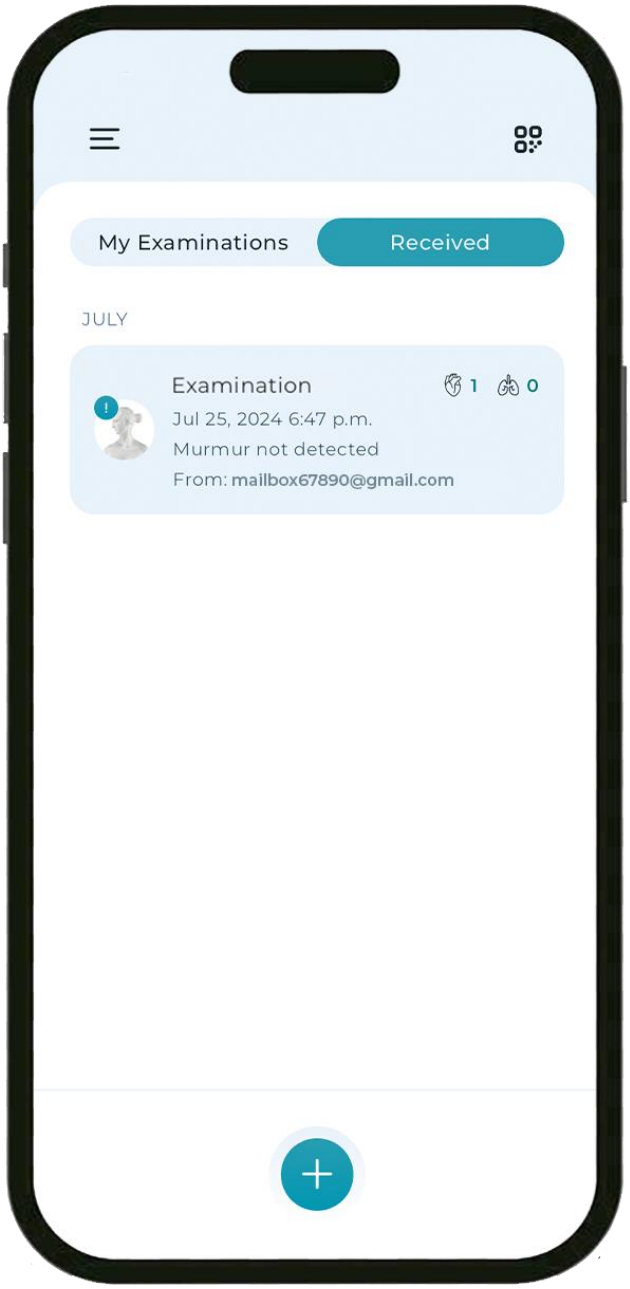


Figure 41. Received examinations

7.11. Downloading PDF reports Rx ONLY

NOTE: The functionality described in this chapter is only available for prescription users. For details, see 7.3.1. Unlocking analysis results in Stethophone Pro.

When your examination has at least one saved heart sound recording, you can download the examination as a PDF report to save it for your medical records or to send the PDF file with your examination to the physician for assessment.

There are three ways to download your examination as a PDF report:

- Swipe left on the examination card on the List of Examinations screen and tap Send/Download.
- Download the examination as a PDF report directly from the Examination screen by tapping Send/Download in the upper-right corner of the screen.
- Download the examination as a PDF report from the Examination Report screen by tapping Download PDF Report.

NOTE: You can only download a PDF report if your examination contains at least one heart recording. If there are only lung recordings in your examination, you will be prompted to create at least one heart recording to download the PDF report.

On the PDF Report screen, you can optionally create a password to protect the PDF file with the report.

NOTE: Password should only contain lowercase or uppercase letters, numbers, and special characters. Some special characters, including \ / : ; " ' { } [ ] < > | ~ and spaces are not allowed. The maximum length of a password is 32 characters.

Switch the toggle to confirm that you want to export your own data as a PDF report or you have the permission from the data owner to do so, you have read and understood the Acknowledgements, and the information you are exporting is accurate and correct to the best of your knowledge. Please ensure you open the Acknowledgements link and familiarize yourself with this important information before switching the toggle.

Next, click Download, and the Stethophone application will create a PDF file with the report that you can either save on your phone via the standard iPhone functionality for saving files or send to another person (e.g., a physician for assessment).

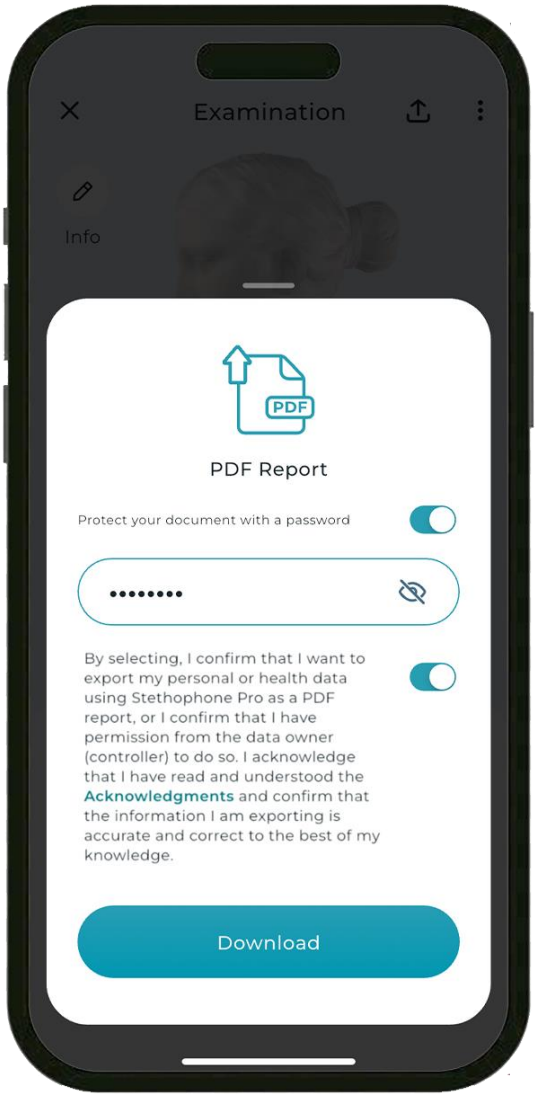


Figure 42. Download PDF Report

If you need to find the PDF file with your examination on your phone later, you can search for the report in your iPhone files by the name, which has the following format: “Stethophone Report-<examination name>-<examination date>.pdf”.

NOTE: You are downloading the report containing only a copy of your examination. If you update your examination after downloading the PDF report, the recipient of the report will not receive your updates unless you download and share the report again. If you delete your examination after downloading, it will not affect any information that has already been shared with another person.

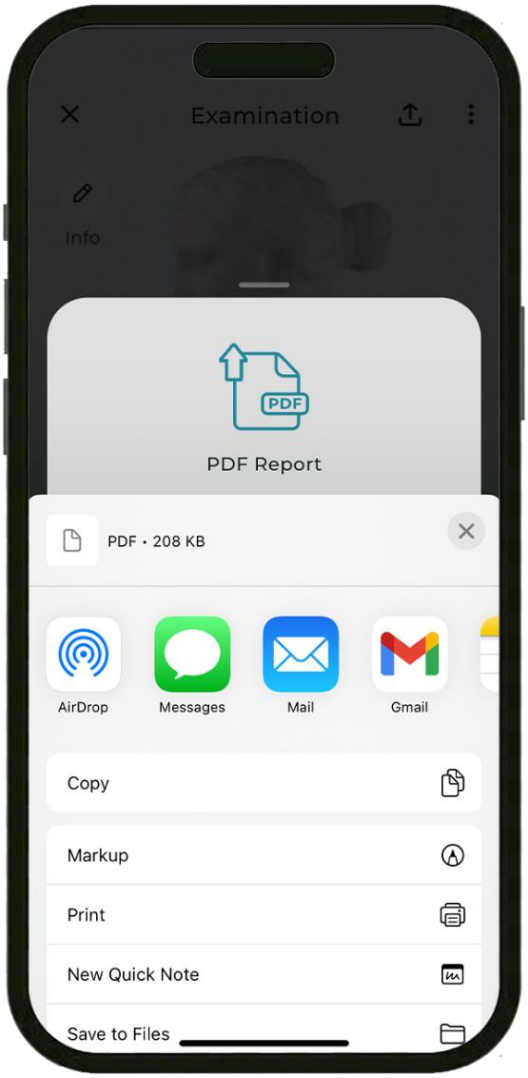


Figure 43. Saving/sending the PDF report

7.11.1. PDF report structure

Each PDF report contains the following information about your examination:

- Examination name and any additional information from the Information screen of the examination.
- The QR code with the link to the examination.
- Dates when the report was generated, and the examination was created and modified as well as the login of the user who created the examination.
- Automatic analysis results for each recorded heart body spot (if the recording quality was sufficient).

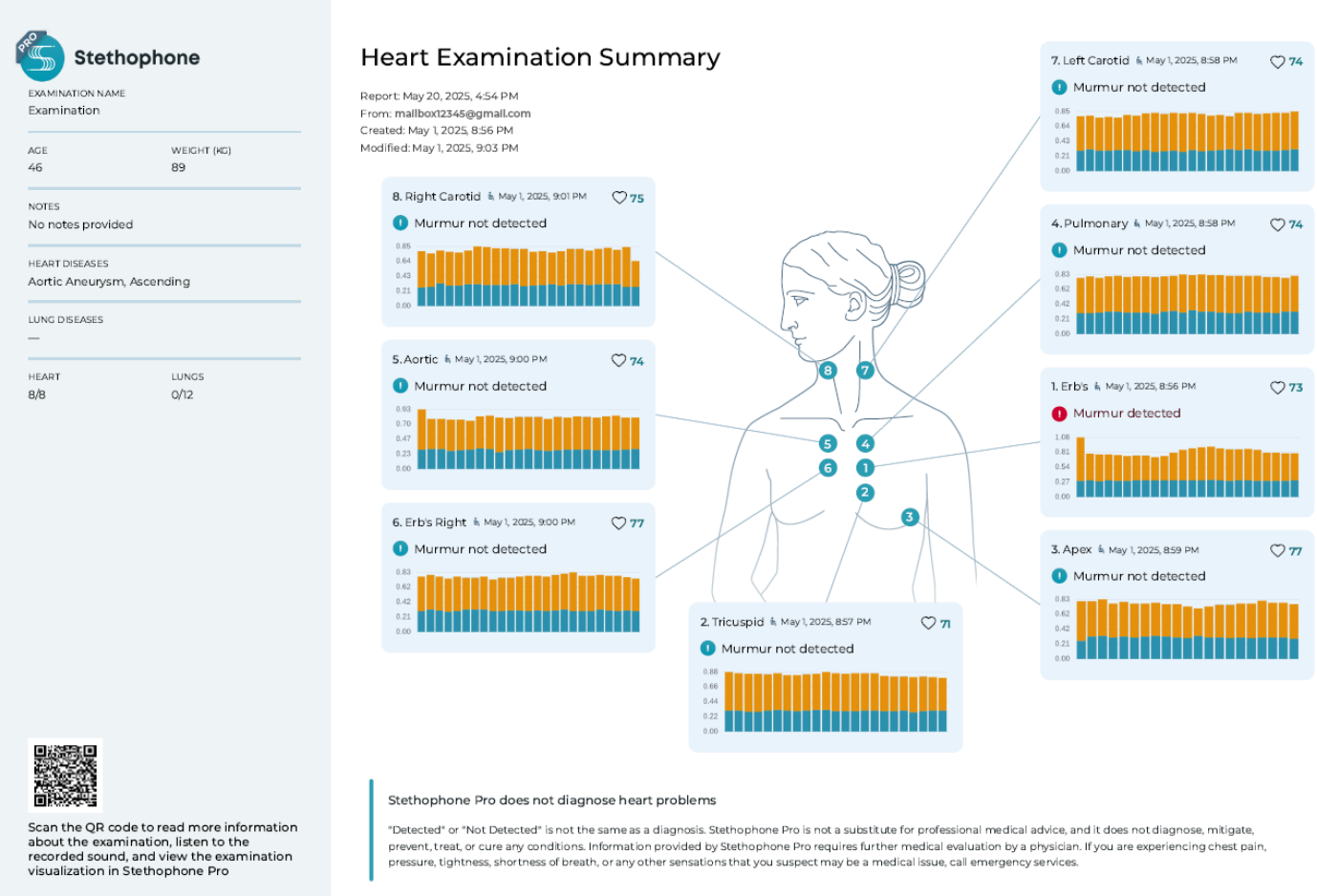


Figure 44. PDF report

7.11.2. Scanning the QR code

If you send the PDF report to another person (e.g., a physician), the recipient of the report does not have to have Stethophone installed on their iPhone to be able to open the PDF file with the report. You only need to provide the password if you created one when downloading the report.

However, the recipient of the report can **scan the QR code** in the lower-left corner of the PDF report to install Stethophone and open the examination in Stethophone to see more details. In that case, the recipient will need to scan the QR code twice: first to install Stethophone and then one more time to open the examination in Stethophone.

Once the recipient installs Stethophone and scans the QR code for the second time to open the examination, this examination will appear as an examination card in the Received tab of the List of Examinations screen.

8. Stethophone settings

You can manage the Stethophone configuration in the left-hand menu section. To open the left-hand menu, tap Menu ☰ in the upper-left corner of the List of Examinations screen.

The left-hand menu of Stethophone includes the following sections:

- **Doctor Mode:** Some functionality may not be necessary for home users. To make the application easier to use, Stethophone offers the Doctor Mode toggle which will hide/display certain features, such as Stethoscope, ability to change the playback speed, and selection between sound filters. Keep Doctor Mode off to hide those extra features, or keep all functionality enabled for your own interest.
- **Declicker:** See section 8.2. Using Declicker.
- **User Guides:** The User Guides section includes the following: How to use Stethophone, What Stethophone can detect, How to choose sound filters, How to analyze sound, and Stethophone User Guide.
- **Help Center:** Tap to contact the Stethophone support team or review helpful information on our Help Center portal.
- **Legal Documents:** This section includes Regulatory Information and legal documentation: Disclaimer, Terms and Conditions, and Privacy Policy. You read and signed those documents after registration, and they are available for your review any time in this section.
- **Give Feedback:** See section 8.1. Sending Feedback.
- **Log out:** Tap the Log Out icon to log out of your Stethophone account.

Tap **Settings** in the left-hand menu to open the Settings section.

Stethophone settings include the following sections:

- **Language:** Tap to change the application language.
- **Microphone:** Enables and disables Stethophone access to the microphone.

NOTE: Microphone must be enabled to conduct any recording or live listening activities.

- **Face ID:** Enables and disables the ability to log into Stethophone using Face ID. For older phone models, Touch ID can be used instead of Face ID.

> NOTE: If the Face ID toggle is not displayed in the Settings menu, check your smartphone settings to ensure that Stethophone has access to Face ID.

- **Geolocation:** Enables and disables Stethophone access to geolocation.
- **Push Notifications:** Enables and disables Stethophone push notifications with reminders about application updates and user's heart examinations.

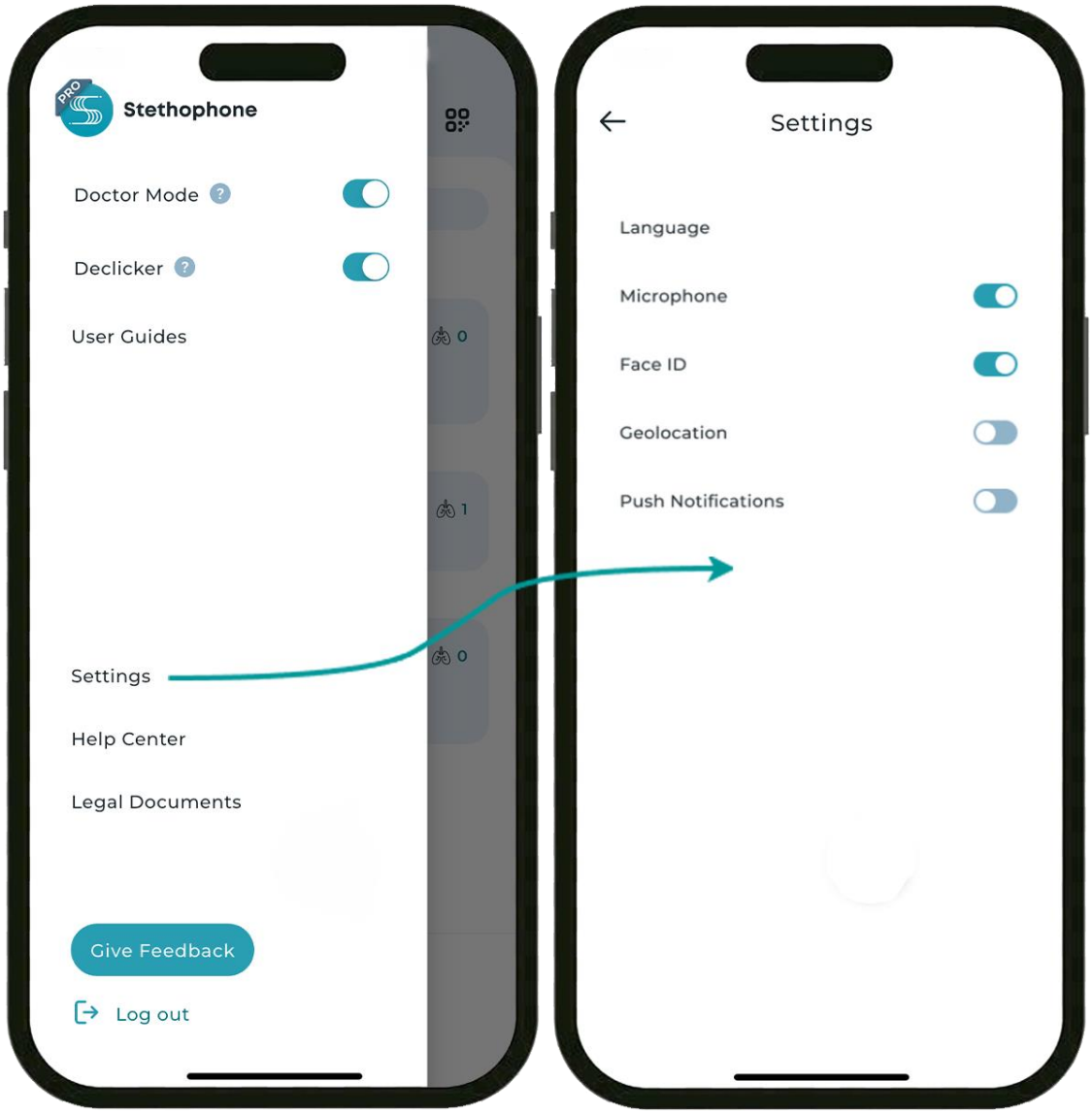


Figure 45. Tap Settings in the left-hand menu to open Stethophone Settings

8.1. Sending feedback

You can send your feedback on our Help Center portal, or right from inside the Stethophone app.

You can provide feedback about your experience with Stethophone in **Settings >> Give Feedback**.

To send feedback, rate your experience from 1 to 5 according to the suggested criteria: “Ease of use”, “Sound quality”, “Sound visualization”, “Storing examinations”, and “Helps me learn”.

You can also report an issue, send a suggestion, or share your opinion about Stethophone in the notes box. This feedback will be sent to our support team.

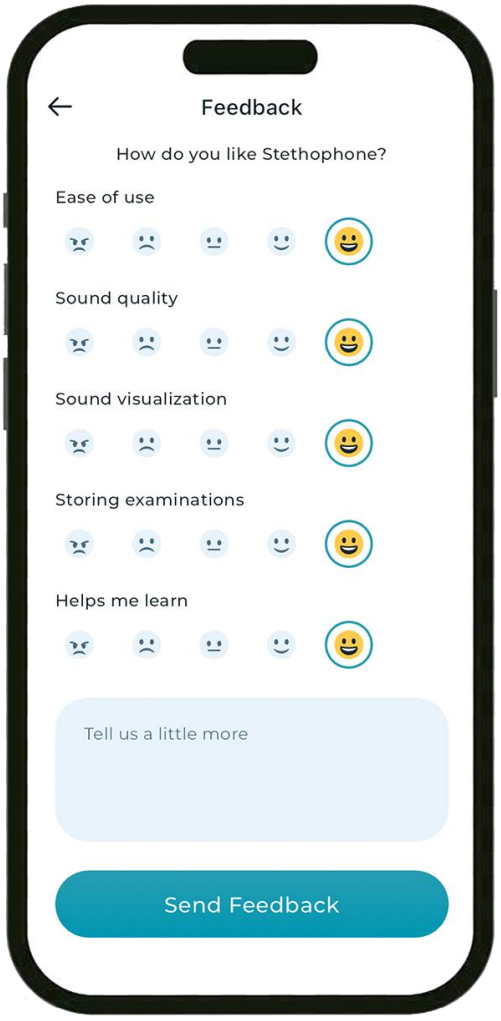


Figure 46. Sending feedback

8.2. Using Declicker

When classic stethoscopes are positioned on the body, they can produce loud and unpleasant noise. For more pleasant use, Stethophone has the Declicker function that removes unwanted sounds of friction between the smartphone and your body when you listen to or record your chest sounds. Declicker is active only when the smartphone is moving along your skin and causing unwanted, loud tapping sounds. It doesn't affect the chest sound filters.

It is recommended that Declicker be enabled at all times except in special cases, such as users with mechanical valves (such valves make a sound on different frequencies than biological sounds and Declicker could remove them).

You can enable or disable the Declicker function in Stethophone **Settings >> Declicker**. The Declicker function is enabled by default in the Stethophone settings.

NOTE: When you record your chest sounds with Declicker enabled, the recording will be saved with the sound, filtered by Declicker. This sound later cannot be changed during playback, regardless of whether Declicker is enabled or disabled during playback.
If you want to have the sound recorded without Declicker, please disable Declicker before making a recording.

8.3. Removing saved login credentials

Face ID (or Touch ID on older phone models) allows you to access any Stethophone account that was added to your Stethophone application by selecting the account from the list.

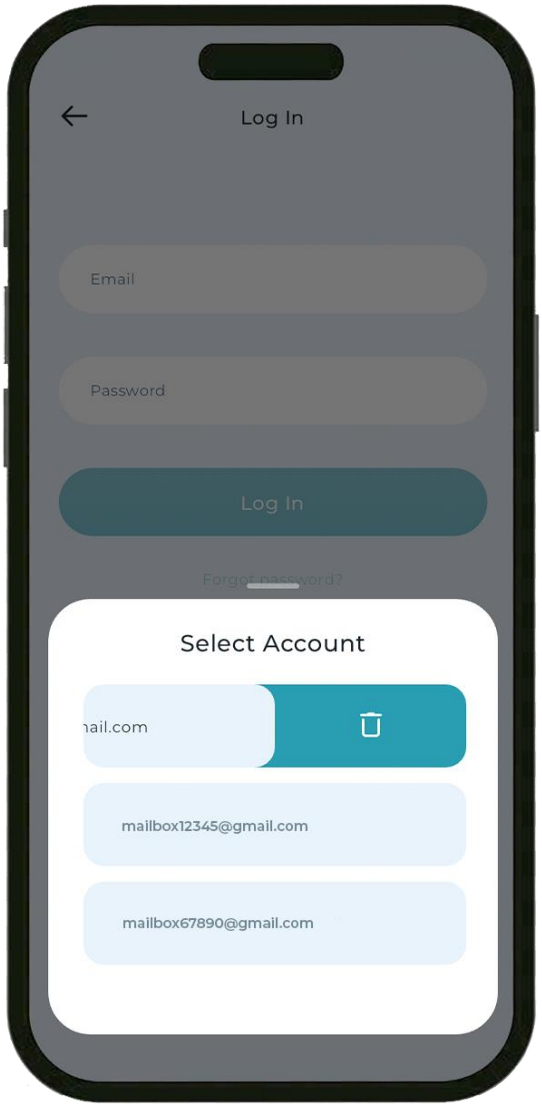


Figure 47. Removing saved login credentials

To remove one of multiple Stethophone accounts from the Stethophone application on your smartphone, swipe left on the account card when logging in with Face ID and tap Delete 🗑.

NOTE: This will only remove the Stethophone account credentials from the account selection on the Login screen without completely deleting that account. The account credentials can be re-added later.

8.4. Deleting an account

You can delete your Stethophone account completely.

Figure 48. Stethophone account deletion

To delete an account:

1. Open **Settings >> Legal Documents** and tap Delete Account at the bottom of the screen.

2. Confirm the account deletion on the confirmation screen.

NOTE: After your account has been deleted, you won't be able to log into Stethophone using the deleted login anymore. Once a user account is deleted, it cannot be restored. You can register again with the same email address or with a new one.

9. Stethophone performance validation

Stethophone version Pro introduces automatic analysis that is performed on recorded heart sounds to offer decision support to healthcare providers.

For validation of its proprietary algorithms for heart sound analysis, Stethophone underwent a thorough testing process to ensure its safety, reliability and effectiveness. Testing included both software verification and validation, as well as clinical validation.

Stethophone algorithms for heart sound analysis have been validated in both retrospective and clinical performance testing on a combination of proprietary and public clinical data. Testing was performed after algorithm development and training was finalized.

The retrospective testing data consisted of 7,304 heart sound recordings made on 2,277 adult subjects. Of these, 4,396 recordings belonged to a proprietary dataset and were recorded using a variety of devices including smartphones (51.6% of recordings) as well as commercially available stethoscopes such as 3M Littmann 3200 (32.2%), DigiScope (3.5%), Eko DUO (1.5%), Riester Ri-sonic (2.6%), Thinklabs ONE (1.0%) and eKuore Pro (0.7%).

Gender at birth was logged for 56.6% of subjects. Out of those, 46.5% were females and 53.5% were males. The age of subjects ranged from 20 to 90 years old. Ethnicity was recorded for 43.7% of subjects, with 78.2% identifying as white, 16.2% as Asian, 4.1% as Latino, and 1.5% as African American.

Each recording in a testing dataset was annotated by multiple expert cardiologists. Annotation of each recording included determining the presence of a heart murmur of any type and providing timings of all S1 and S2 heart sounds that were audible in the recording. Heart murmurs were observed in 54.2% of recordings.

There was no overlap between data collection sites, subjects, and recordings included in the testing and training data.

The following tables demonstrate the results of device performance for the primary indicators (murmur detection and heart sound timing):

Murmur detection

Metric	Dataset	Test result
Sensitivity	America	88.7 95% CI: (87.2 to 89.8)
	Multi-Device	93.0 95% CI: (91.9 to 94.2)
Specificity	America	89.2 95% CI: (87.2 to 91.3)
	Multi-Device	94.4 95% CI: (93.7 to 95.4)
Accuracy	America	88.8 95% CI: (87.6 to 89.8)
	Multi-Device	93.8 95% CI: (93.1 to 94.6)
ROC AUC	America	96.9 95% CI: (96.1 to 97.3)
	Multi-Device	97.9 95% CI: (97.5 to 98.3)

Heart sound timing

Metric	Dataset	Test result
S1 precision	America	97.1 95% CI: (96.7 to 97.5)
	Multi-Device	96.9 95% CI: (96.6 to 97.3)
S1 sensitivity (recall)	America	97.3 95% CI: (97.0 to 97.7)
	Multi-Device	97.9 95% CI: (97.7 to 98.1)
S2 precision	America	97.5 95% CI: (97.2 to 97.9)
	Multi-Device	97.1 95% CI: (96.7 to 97.4)
S2 sensitivity (recall)	America	96.5 95% CI: (96.1 to 97.0)
	Multi-Device	97.7 95% CI: (97.5 to 97.9)

Heart rate

Metric	Dataset	Test result
MAE	America	0.482 bpm 95% CI: (0.418 to 0.557)
	Multi-Device	0.389 bpm 95% CI: (0.346 to 0.430)

Appendix 1. Explanation of icons

General	
	Stethophone logo
	Settings
	Loading
	Stethoscope
	Close the screen
	Add
	Back
	Log out
	Fingerprint
	Invite your friends
	Feedback icon
	Unlock analysis results (for prescription users)

Examinations	
	New examination
	Delete email/examination
	Body spot with a recording
	Body spot without a recording
	Lungs
	Heart
	Front/Back of the body
	Murmur detected
	Murmur not detected
	Insufficient quality
	Actions with an examination
	Add/Edit notes
	Send an examination or download it as a PDF report
Sound recording	
	Indicator for placing the smartphone
	Start recording (Doctor Mode disabled)

	Start recording (Doctor Mode enabled)
	Recording in progress
	Play the recording
	Pause the recording
	Diaphragm filter
	Bell filter
	Starling filter
	Actions with a recording
	Oscillogram
	Spectrogram
Notifications	
	Microphone
	Bluetooth headphones
	Link has expired
	Action successful
	Action unsuccessful / Error
	Help

	Internet connection problems
	Server error

Appendix 2. Troubleshooting

Issue	Solution
I cannot find Stethophone in the Google Play Store.	Currently, Stethophone is available for Apple iPhone users only.
I haven't received the registration/password reset email.	• Verify you are connected to the internet and able to receive emails. (Watch video https://stethophone.com/video/v3xRx/en) • Check the Spam folder of your email. • Try resending the email from the Sign Up/Reset Password page of Stethophone
I don't hear the chest sound.	• Verify your wireless headphones are connected properly. (Watch video https://stethophone.com/video/v3xRx/en) • Verify the volume of your phone is not muted and it is at least at 50-60%.
Sound quality is insufficient.	• Be sure to remove a phone case from your phone. • Use Stethophone in a low-noise environment. • Press the bottom of your phone perpendicular to your bare skin. (Watch video https://stethophone.com/video/v3xRx/en) • Do not apply too much pressure to the phone, but ensure it tightly touches the skin.
The recording is empty or has poor quality.	This issue may be caused by the **Voice Isolation** and/or **Sound Recognition** features on your iPhone. Make sure these features are disabled. • To turn off **Voice Isolation**: 1. First, enable the stethoscope (for example, by clicking **Record again**) – you can change the Voice Isolation settings only when the microphone is active.

	2. Then, swipe down from the top-right corner of your screen to open **Control Center** and tap **App Controls**. 3. Under the **Audio & Video** section, look for **Mic Mode**, and select **Standard**. NOTE: Selecting the Standard mic mode ensures your iPhone uses standard voice processing, which is compatible with Stethophone. Stethophone hasn't been tested with Voice Isolation enabled or in the Automatic mode. • To disable **Sound Recognition**, go to **Settings > Accessibility > Sound Recognition** and switch the toggle off.
"Unable to connect" message is displayed.	Stethophone is currently unable to reach the servers, possibly due to network restrictions in your environment. Please contact your network administrator or Stethophone support. NOTE: While a connection issue is present, the Stethoscope feature will be still available for use.
"Weak Internet Connection" or "Check Your Internet Connection" message is displayed.	If the system becomes unavailable due to networking, cloud, or connection problems, you will be shown this message. No further action is required. This screen will close automatically once your connection is restored. NOTE: While a connection issue is present, the Stethoscope feature will be still available for use.
"Something went wrong. Service will be restored soon." message is displayed.	When this message is displayed, the application is not available for use. Try to restart the application. If the message is still displayed, please let us fix the underlying issue and simply try again later. Note, that the Stethoscope feature will be still available for use during this service interruption.
Heart sound analysis results are not accessible. The Lock icon is displayed.	If a message with a Lock icon is displayed, it means the analysis feature in your application is not activated. See section 7.3.1. Unlocking analysis results in Stethophone Pro
"Access is limited to your medical facility" message is displayed.	When this message is displayed, the application is not available for use because you are connected to an unauthorized Wi-Fi network outside your medical facility. This restriction

	applies only to clinics where the application use is limited to the clinic's internal network. Please connect to an authorized Wi-Fi network within your facility or contact your network administrator or Stethophone support.

Appendix 3. Technical support

Visit the Stethophone Help Center portal for assistance with any questions, concerns, or issues you might have.

To access the portal, tap the Help Center button, which is available on the Landing and Login screens, as well as in the Settings section of Stethophone.

The Help Center enables you to submit a ticket to the Stethophone support team, who will assist you in addressing your concerns.

Additionally, the Help Center contains a constantly growing number of self-help articles and FAQs.

Also, you can contact the Stethophone team at support@stethophone.com or our support portal https://support.stethophone.com/.

For more information, please visit: https://stethophone.com

Accessing the SBOM

To view the current SBOM (Software Bill of Materials) for Stethophone, go to https://stethophone.com/assets/SBOM_Stethophone.json

The SBOM provides a comprehensive inventory of third-party and open-source software components included in this product, which supports cybersecurity management and compliance according to the FDA requirements.