

User Manual of the
application

Find Your Beat

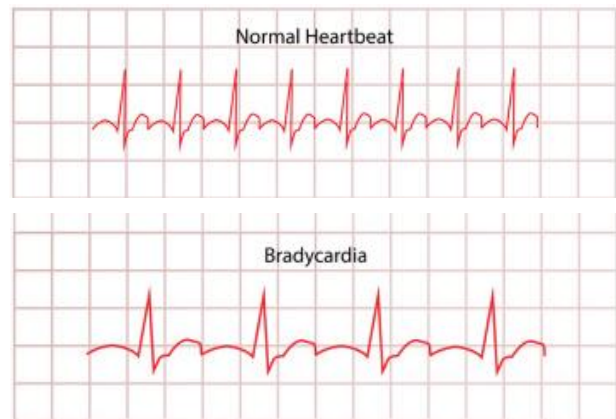


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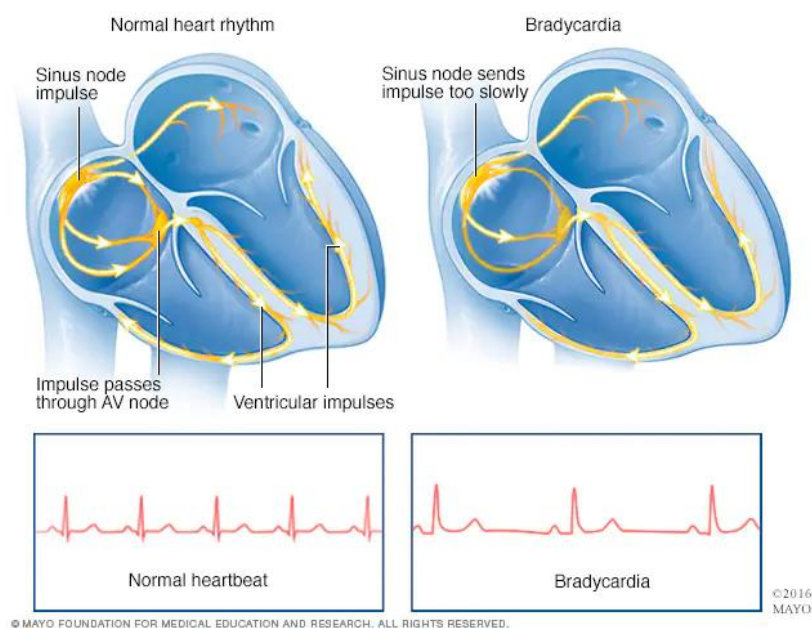
What is bradycardia?

The hearts of adults at rest usually beat between 60 and 100 times per minute. Bradycardia is a common type of arrhythmia defined as a heart rate lower than normal, this meaning a rate between 50 and 60 beats per minute (bpm). It can be observed in patients aging and with other pathologies, as well as in young athletic individuals.



Causes of bradycardia

Bradycardia could be a consequence of another health problem, such as thyroid disease or sleep apnea which will both cause a slower than normal heartbeat. If this is the case the treatment for that condition might correct bradycardia.



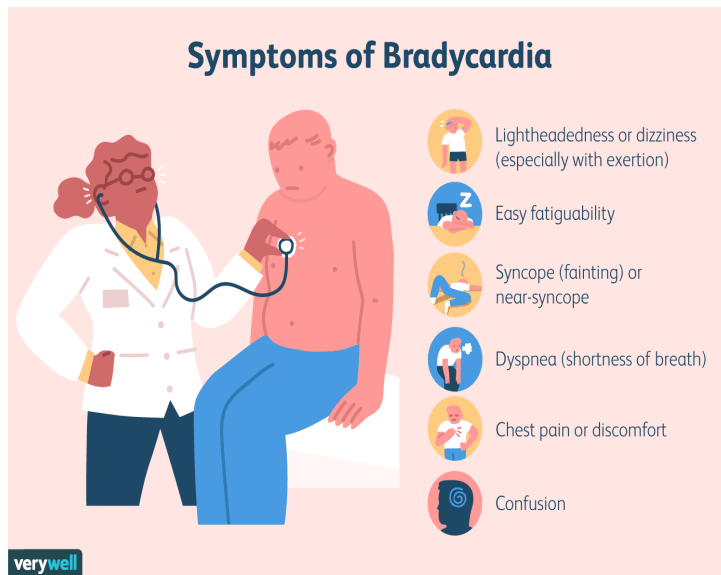
On the other side, bradycardia can occur due to problems in the sinus node, atrioventricular nodal tissue, and the specialized His-Purkinje conduction system. When the problem is due to the sinus node, we call it sinus bradycardia. The sinoatrial node is the default peacemaker, when the beat that it produces is lower than 60 beats per minute, there is a sinus bradycardia.

Treatment

Usually, bradycardia can be treated with drugs, however if these methods do not work the patient can be a candidate for a temporal peacemaker. In some cases where the patient



has bradycardia as a side effect of certain medication the solution might be to a permanent peacemaker implant.



Symptoms

Bradycardia has symptoms that include syncope, presyncope, transient dizziness or lightheadedness, fatigue, dyspnea on exertion, heart failure symptoms, or confusion resulting from cerebral hypoperfusion. If a patient presents these symptoms after an initial evaluation, it can be a candidate of suffering bradycardia. It is essential to diagnose and treat bradycardia before it causes bigger problems.

How patients will be monitored?

In order to diagnose bradycardia, Find Your Beat will monitor the patients by electrocardiogram (ECG) and accelerometer (ACC). Why use these two signals? As it has been said bradycardia is a heartbeat slower than normal, therefore by looking at an ECG we can count the number of R peaks present in one minute, if there are less than 60 bpm, we can conclude that the patient might present bradycardia.

As it has been said, patients might present syncope and heart failure. This can lead into falls of the patient. With Find Your Beat we will monitor these falls by means of an accelerometer set on the patient's head. Knowing the number of falls will be helpful when establishing the stage of the bradycardia and therefore what measures should be taken to correct it.

For the patient

The first step to use Find Your Beat is to click *ENTER* in the first window, to connect with the server. Once you have clicked *ENTER* you will have two options *REGISTER* or *LOGIN*. If it is the first time you are using Find Your Beat you will need to register, so click in this button, then you will have to introduce some personal data and you will be all set! You are not going to be able to introduce a name with numbers, nor an email without it's @ and neither a phone number with a number of digits different from 9, but do not worry if you make a mistake, you will have another chance to input the correct data.



If it is not the first time you are using Find Your Beat you can click the *LOGIN* button, which will ask for your username and password, this information will be checked and you won't be able to continue if you are not registered already, then you can click in *LOGIN* or go to the previous window with the *BACK* button (this function is available in several windows). Once you have clicked *LOGIN* you will have four options.

The first one, *GET DATA FROM MY BITALINO* will give you the possibility to start recording your data, either your electrocardiogram or your accelerometer, in order to choose you have a scroll bar, select ECG for electrocardiogram and ACC for accelerometer. You have also a scroll bar to choose the sampling rate, that determines how often you are taking samples. Finally, you have to choose how many samples do you want, you can define this by typing it. To start recording the data click *START*, when it has finished the *recording...* text will turn pink, and the button start will

disappear. To exit the window, click *BACK*.

The second option *SEE DATA* will let you check all your data. Then you will have the option to see your results of the diagnosis test by clicking on *See diagnosis*.

Thirdly, you will have an option, *INTRODUCE MY BITALINO* to configure your Bitalino in case this one changes, the format is shown and you must follow it because it will be checked to prevent from errors.

Finally, you have an option, *MAKE A DIAGNOSIS TEST*, where you have to check the boxes of the symptoms you are presenting, by clicking on them, and write any other observation that can help in your diagnosis.

BACK buttons will let you go to the previous window.



EXIT button will close the app and the thread.

For the doctor

The first step to use Find Your Beat is to click *ENTER* in the first window, to connect with the server. If you are a doctor, you must be registered by your hospital before using Find Your Beat. Once the hospital provides your password you will be able to log in with your username and password by clicking *LOGIN*, the information will be checked, and you must be in the database of the hospital.

Once you have logged in you will have a window where you can search a patient. You can write either the full name or just some letter in the text box, it doesn't matter because Find Your Beat will show you all the patients that contain the letters you are looking for when clicking *SEARCH*. Then a list of all the patients that contain the characters searched will be shown. You can do several searches until you find your desired data! Click on the patient you are interested in and click the *GO* button. When the *GO* button is clicked it will show you three buttons that will do the following.

SEE FILES will show you all the files of the patient, you can select the file you want to open and click on *GO* to open it, the file will open in your desktop and the information will be shown. You will be able to open several files.

SEE DATA will let you check all the patient data. Then you will have the option to see the results of the diagnosis test by clicking on *See diagnosis*.

EXIT button will close the app and the thread.

BACK buttons will let you go to the previous window.

Find Your Beat Project

In Find Your Beat we also offer the possibility to check all your information in a server, where you are able to register and from there on login in your account, containing this one your personal and medical data. Doctors are also able to check the patient data at any moment through their accounts already provided by the hospital, so there will be no need to register. And all the information will be stored in an external database, so it never gets lost!

With Find Your Beat we want to provide a server-based app to make the lives of people suffering from bradycardia easier and facilitate the doctor's job.