

emwave[®]mac
stress relief system

Owner's Manual

Disclaimer

Use emWave® Mac and the exercises contained in the software as tools for individual balance, optimal performance and growth. Although this instrument and exercises are believed to be very safe and have potentially great benefit, no medical benefits or cures are expressed or implied. These programs and exercises are not to be used as, or used in lieu of, any course of medical or psychological treatment.

Please note that emWave Mac is designed to be a training and entertainment product. None of the feedback, summary data, or logging data provided in the software is to be interpreted as medically diagnostic.

Finally, heart rate variability patterns differ widely from one person to another. There are no “right” or “wrong” patterns. The coherence scores in the program and games are especially useful for comparing your own progress in increasing your ability to maintain a physiologically coherent state as you practice; they should not be compared between one individual and another.

Individuals with heart irregularities such as atrial fibrillation or flutter or intense clusters of premature ventricular contractions (PVC's), or children who are unable to sit still, may be unable to use the emWave Mac successfully.



14700 West Park Ave
Boulder Creek, CA 95006
www.heartmath.com

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Basics

About this Manual

This manual is a short guide for emWave Mac. It is not intended to cover all the topics or the full functionality of emWave Mac. For more extensive information access the Help menu, tutorial and Quick Start Guide within the software or visit our online support center at:

<http://support.emwave.com>

Package Contents

emWave® Mac software CD
USB module
USB ear pulse sensor
Owner's Manual

Installing the Software

To install and run the program you need the registration number located on the back of this Owner's Manual.

When you're ready to install the software, insert the emWave Mac software CD into your CD-ROM drive.

Double Click emWave Mac file

The first screen you will see includes the emWave Mac Installer file. Also, there is a Read Me.pdf file.

Double Click emWave Mac installer icon

Next you will see *Welcome to the emWave Mac* Installer which will guide you through the Installation process.

Press Continue

Next a Read Me is displayed. Please read this document. This document gives you pertinent information and details about emWave Mac.

When you are ready to proceed press Continue

Next read the License Agreement. When you press continue a pop up will ask you if you wish to Read the License, Disagree or Agree. Press Agree to Continue.

Installation Type is the next step. A Standard Install on “Macintosh HD” is the default Install Location. Click Install to continue.

The installer requires that you type your password and press OK to continue. Follow the on screen installation instructions.

emWave Mac will now configure your installation and copy the files to your computer.

After installation is complete we suggest you review the help files, es-

pecially the Quick Start Guide which will help you set up the hardware and start a session.

Notes: After installation, you may be prompted to download updates. In order to have the most current version of this application, it is highly recommended to download the updates.

Installing the Hardware

1. Plug the Sensor Device into a USB Port

Connect the ear sensor cable to the USB module and plug it into an available USB port on your computer. Make sure the ear sensor cable is securely connected to the USB module. The post on the ear sensor cable should be fully inserted into the USB module.

Each time the sensor device is connected to a USB port, the lights on the USB device should momentarily light up to confirm a connection. If the lights on the USB sensor device do not illuminate, it means the device isn't recognized. Go to the help menu on the emWave Mac system home screen for assistance.



USB module

2. Connect the Ear Sensor

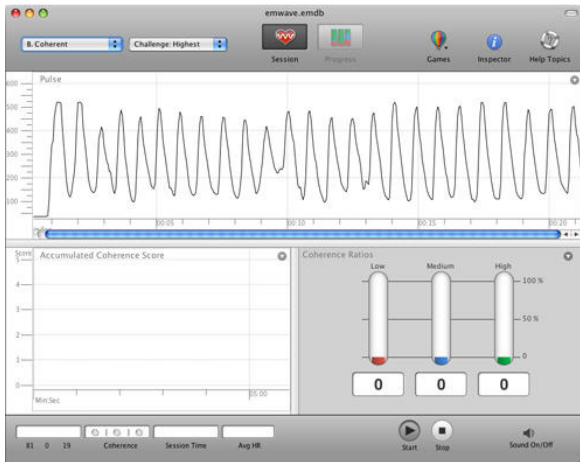
Clip the ear sensor to your earlobe and the lapel clip to your clothing. Slide the lapel clip along the wire to a comfortable position. You might have to reposition the sensor to get accurate pulse detection. The ear sensor should be attached directly to your earlobe. The ear sensor detects your pulse more easily if your ear is warm. You can warm your ear by briefly covering it with your hand before clipping on the sensor.

Note: You can also use the emWave finger pulse sensor instead of the ear sensor. Go to the HeartMath online store to see the available sensor devices.



Start a Session

After properly connecting the ear sensor, click the Start button. While the sensor is calibrating, you will see the following screen:



When you see a pulse wave similar to the above pattern, you are collecting accurate data.

For best results getting a reading, please be still and quiet. Talking or moving reduces the accuracy of the sensor. Taking a few deep breaths before attaching the ear sensor may help you to relax and get a good reading.

Note: You may need to move the sensor to another part of your earlobe to get a good reading. After repositioning the ear sensor, it may take a few seconds to register your pulse. After the sensor has calibrated your pulse, the following screen shows emWave Mac in Record Mode:



If you are seeing red lines (artifacts) in your heart rhythm pattern, adjust your sensor until your pulse wave data shows distinct, smooth wave forms.

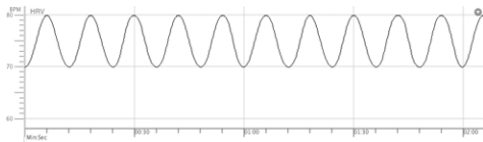
View the Data



Viewing your heart rhythm pattern during a session will show you a great deal about your internal physiological states. It contains a tremendous amount of information about the constantly changing state of your autonomic nervous system. Ultimately, the heart rhythm pattern itself offers you even more information than your numerical Accumulated Coherence Score.

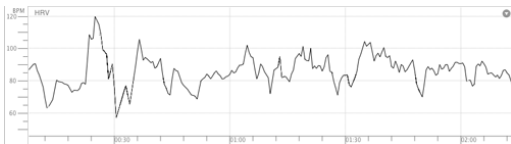
With regular use, you will be able to look at your heart rhythm pattern, displayed within the Heart Rhythm Graph, and visually identify when you are in low, medium or high levels of coherence. With time, you will be able to recognize your coherence patterns.

A close to ideal, smooth, coherent heart rhythm pattern looks similar to the image below.



Example 1: Nearly Ideal Smooth Coherent Heart Rhythm Pattern

In most situations, good physiological coherence will not result in quite such an ideal waveform. Starting out, it is likely to look more like this:



Example 2: Incoherent Heart Rhythm Pattern

As you practice the Quick Coherence technique and attempt to become coherent, the shape of the line will gradually change from a jagged incoherent line to a smooth coherent pattern.

View Your Coherence Ratio

The main session screen presents a continuously updated view of your physiological Coherence Ratio, Current Coherence Level and Current Heart Rate reading during a session.

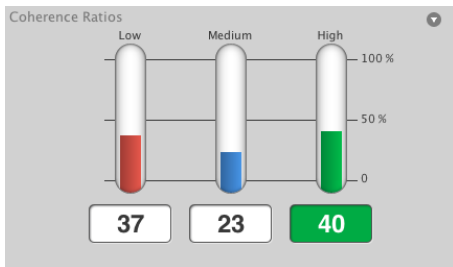
The information is updated every five seconds in correlation with your heart rhythm pattern. As the data is continuously added, the program averages the ratios and adjusts the levels throughout the session. During an active recording session the Coherence Ratio reflects the average levels of coherence over the entire length of the current session.

The Coherence Ratio bar chart is divided into three levels: Low, Medium and High coherence.

The total of the Low, Medium and High coherence scores will always equal 100 percent. The Coherence Ratio bar chart shows how much time you have spent in low, medium and high coherence levels during your session. The goal is to improve your high coherence ratio.

Practice with emWave Mac allows you to learn to increase your time in higher levels of coherence.

Coherence Ratio:



In the image above this person was in:

- Low Coherence 37% of the time
- Medium Coherence 23% of the time
- High Coherence 40% of the time.

The illuminated box shows the current state of coherence while running a session. Ideally you will want to be in High Coherence 100% of the time.

The Current Heart Rate display reflects the average heart rate for the most current five seconds of data recorded. So every five seconds em-Wave Mac averages your heart rate and displays that average.

After ending a session it will show the average heart rate for the entire session.



The three Coherence lights shown below reflect your current coherence level.



Remember there is a little bit of lag time between when the data is recorded and when it is analyzed and viewable to you through the displays mentioned above.

Also, remember to improve your Coherence Ratio by practicing The Quick Coherence® technique.

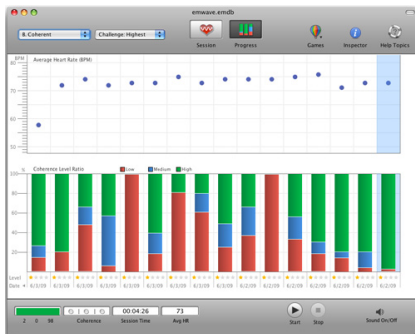
Stopping and Saving a Session

To stop the session simply click the Stop Button .



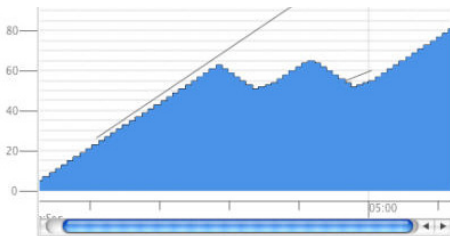
After stopping your session your data is automatically saved. A special feature of emWave Mac is the ability to review any of your past sessions. Online help includes information on how to review a previously saved session.

emWave Mac automatically saves the data from each session and allows you to review your progress. Multiple users can save their data to a personal file and there is no limit to the number of sessions that can be saved.



Accumulated Coherence Score

The Accumulated Coherence (AC) Score is a linear view of the AC Score. With this score you can measure your progress over an individual session and compare between separate sessions.



Interpreting Your Accumulated Coherence Score

The Accumulated Coherence Score value plotted in blue on this screen is linked to the amount of time you are in low, medium, or high coherence.

When you are in low coherence, the slope of the line goes down.
When you are in medium or high coherence the line goes up.

The numbers on the left side of the screen represent points. For every five seconds that you are in medium coherence you receive 1 point (+1). For every five seconds you are in high coherence you receive 2 points (+2). For every five seconds that you are in low coherence you lose 2 points (-2).

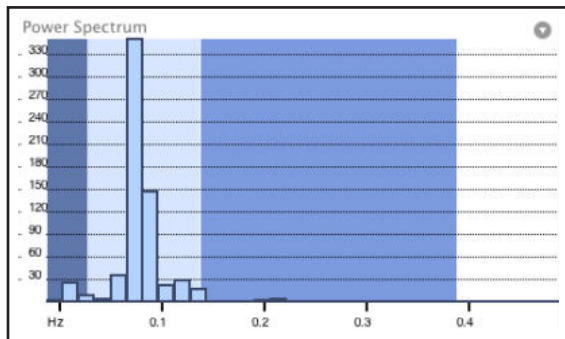
Increases and decreases in points are reflected in the upward and downward movement of the line.

After your score is greater than 5 you will see two lines on the graph sloping at an upward angle from left to right. These lines represent a target area called The Zone. Your goal is to accumulate points by staying in medium or high coherence, which will cause the blue line to move upward between the sloping lines into The Zone.

Using the Accumulated Coherence Score screen to view your relationship to The Zone can help you achieve and maintain higher levels of coherence.

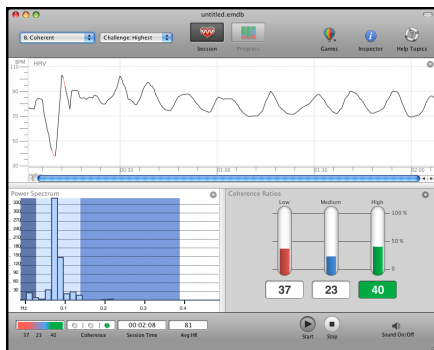
To learn more about the Accumulated Coherence Score go to the online support site at **<http://support.emwave.com>**.

Power Spectrum (advanced user)



The emWave Mac power spectrum screen breaks the HRV wave into its frequency components. Each blue bar represents a sine wave at a particular frequency and amplitude. If you mathematically combined all of the sine waves represented by the blue bars you would get an approximation of the original HRV wave. The power spectrum is useful because researchers have found out that the blue bars in the three colored regions indicate different states of activity in the autonomic nervous system.

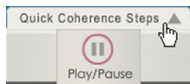
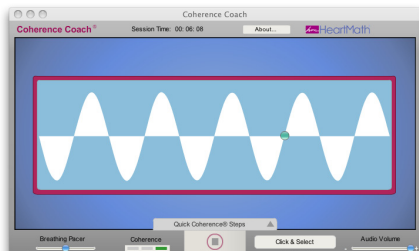
There are three colored regions—the VLF (very low frequency) dark-colored region on the left shows sympathetic activation. The LF (low frequency) region in the light-colored middle region is the “baroreceptor region” which reflects the blood pressure control mechanisms between the heart and the brain and when in a coherent state indicates a synchronization of the sympathetic and the parasympathetic branches of the autonomic nervous system. The HF (high frequency) third region indicates parasympathetic activity. As you shift towards high coherence, the bars will focus around 0.1 Hz in the second region. You can find more information about the power spectrum screen in the online help.



Running the Coherence Coach®

To open the Coherence Coach®, choose menu Windows > Coherence Coach or choose it from within the Games icon on the Session Screen.

The Coherence Coach (shown below) opens.

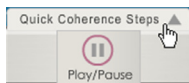
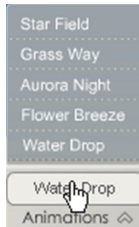


Now connect to the sensor and press the Play/Stop button to begin your Quick Coherence® technique training. The Heart Rhythm Display will run in conjunction with the Coherence Coach. The coherence icon to the left of the Play/Stop will show your coherence level.

After the sensor has been calibrated, use the slider on the right to adjust the volume and the slider on the left to adjust the Breathing Pacer. Then follow along with the Coach.

After the audio training is complete you can continue to use the Coherence Coach by choosing one of the Animations from the menu (shown right).

After the audio training is complete you can also go back over the steps by clicking the Quick Coherence Steps button on the bottom of the Coherence Coach (shown below).



To stop the session simply click the Stop Button on the session screen or the Stop Button in the Coach.

After you are finished with the Coach you can view your data in the session screen that has been running in the background. You can perform all the same functions as you could after stopping a regular session.

Playing a Game

You can choose a game from the emWave Menu or you may click the Games icon from the Session or Progress Windows. From the drop-down list, choose one of the three games:

Balloon Game



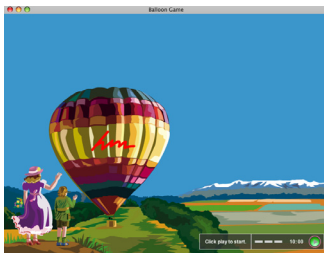
Rainbow Game



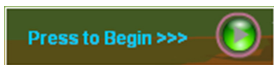
Garden Game



After clicking the game you want to play, the game opens up in a separate window. For example, the Balloon Game is selected and shown below.



To start the game, click the green Start button located in the lower-right corner of the screen.



You will see a message, emWave is calibrating for a few seconds.

The game has started once you see one of the coherence bar indicators light up. (shown in the picture below)



To stop the game, click the Stop button which has replaced the Start button and then Exit the game.

The games run in conjunction with the monitoring of your heart rhythm. After you have finished a game, you can immediately review your data on the Session Screen, or view it later from the Progress Screen.

Additional Help

Help Files

emWave Mac is designed with extensive self-contained Help Files that cover a variety of detailed topics to assist in your use of the product. To access the Help Files go to the Help menu and click emWave Mac Help. To find a topic you can manually search through the table of contents and topics by keyword or use the search function.

Online Support Center

The online support center provides extensive information to answer your questions.

To access the online support center go to the emWave Mac menu and click Support Online.

In the support site, use the knowledgebase or search function to find the answer to your question.

Note: Fill out the form at the bottom of the page if you want to submit any questions to the online support center.

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This device complies with FCC part 15 class B and CE EN 55.02 and 55.04.
Tested to comply with FCC standards for home or office use.

Manufactured under US Patent Nos.: 6,358,201; 7,117,032 and 7,163,512. Australia Patent No. 770323. EU Patent No. 1156851. China Patent Nos. 00807109.8, HK 1042056, Korea Patent No. 10-0616370. Canadian Patent No. 2,364,032

