## Tinnitus help -The app for iPhone, iPod and iPad

## Operation

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## 1 Short and precise: How to use tinnitus help

#### 1.1 Step by step

- 1. Put on your headphones
- 2. Click on "Start"
- 3. Select the tinnitus frequency that matches your left ear, your right ear or both ears
- 4. Set the volume so that your tinnitus is just covered, taking care that the frequency is not too loud. It should only be heard softly in the background. If you have difficulties finding your tinnitus frequency this will probably be because the tinnitus reflects the range of your hearing loss, i.e. a frequency range that is difficult to hear for you. This is a common occurrence. If this happens, don't give up, stay with this frequency even if you can hardly hear it. Your auditory cortex will be stimulated nevertheless, that will encourage your auditory perception.
- 5. Do you hear your tinnitus sound oscillating or fluctuating? Or at different noise levels or different pitches? Then use the set up variations in volume, vibrato and tremolo.
- 6. If you hear a hissing, roaring or chirping noise sound in addition to your tinnitus, select that sound too and set it to the same volume.
- 7. You have now set up your tinnitus profile and you can check under "settings".
- 8. Mix your chosen tinnitus profile with a pleasing additional sound (trickling water, summer rain, bird song etc.) and start the process of masking. Your tinnitus will move more and more into the background and becomes thereby less and less obvious.
- 9. Would you like to add music to your tinnitus setting? If you do, select a pleasing piece for "reprogramming". Please read below what you have to notice when listening to music.
- 10. On the screen "setting" you will see all information concerning your personal tinnitus profile at a glance. In the bottom third of the screen you will see the masking sound that you have chosen or the piece of music you have selected for reprogramming.
- 11. On the screen "setting" save your personal tinnitus profile and your 'tinnitus help' mix by using the "save" button and access it wherever you are and whenever you need it. Do you want to make changes to your profile or your mix? Go back to "start" and by using the buttons, select what you would like to change. Do you want to create an entirely new profile? You can do this via the homepage. Click on "new" and you can create a new mix. Alternatively, you can reach the homepage by selecting "setting" "reload" and "back". You can create a new profile by clicking on "start" in the top right-hand corner.
- 12. Do you still hear your tinnitus whilst using your personal tinnitus setting? Don't be tempted, don't turn your profile louder, but go back to "start" and choose a different tinnitus frequency. This new frequency needs to be very similar to the one you selected previously. Mix this frequency with a pleasing sound as a diversion from your tinnitus.
- 13. Use your personal tinnitus setting at least for 15 minutes each day.

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14. When you are on edge and very stressed, you can use the program up to 2 hours. However, only do this if you have mixed your tinnitus profile with pleasing music.

Hint: Press the (L+R) button for settings that are identical for both ears. When L+R has been set, the slide switches will automatically move simultaneously.

## 1.2 Tinnitus help with music

Only use this function if you find yourself in a relaxing environment - free from any disturbances. It will have the best effect if you can lie down and relax your whole body. This is how it is done:

- 1. Select one of the three pieces of music on offer and mix it with your personal tinnitus profile. When music is added, your individual tinnitus setting should be barely perceptible. The music is now playing the leading role.
- 2. Once you have chosen a piece of music you should initially stay with this piece for at least a fortnight. This is necessary to achieve a reprogramming of the brain (see "Why can **'tinnitus help'** relieve the effect of noises in your ear?").

Another hint: Many tinnitus sufferers complain about a hearing loss in the high frequency range. Highs (treble) and lows (bass) can be adjusted by selecting "settings > ipod (when using an iphone) > music > equalizer". Click onto "more treble" and, if needed, "less bass". This will help you to train your auditory perception and counteract your hearing impairment.

### 1.3 Why can ,tinnitus help' relieve the effect of noises in your ear?

**'Tinnitus help'** is a program that has been developed over the last five years whilst working with tinnitus patients. sufferers. It has been established and Experience has shown that indeed it can really can be used to achieve changes in the ear change subjective hearing and in a person's the auditory perception. This will have a positive effect on the sufferer's physical as well as mental condition. 'tinnitus help' utilizes the fact that the same brain activities that enable us to perceive auditory stimuli, i.e. real sounds, also cause the perception of the tinnitus sound in the ear or head. Thus 'tinnitus help' is able to intervene in all central auditory processes. **'tinnitus help'** reflects forms an image of your individual tinnitus frequency and offers you the option to mix this frequency with pleasant sounds or even music. This means that **'tinnitus help'** can assist you to change the way you perceive your tinnitus sound by letting it gradually fade into the background. Regular listening to your individual **'tinnitus help'** setting will enable you to learn how to increasingly fade out the sound in your ear and eventually ignore it. Experts call this "habituation".

This means that **'tinnitus help'** can assist you to change the way you perceive your tinnitus sound by letting it gradually fade into the background. By listening regularly to your individual **'tinnitus help'** setting you will be able to learn how to increasingly cut off the sound in your ear, enabling you to ignore it. Experts call this "habituation".

The association "I am hearing one or several sounds or music that are pleasing" will at first be stored in the hippocampus, our memory centre. If the experience is repeated by using **'tinnitus help'**, the hippocampus works like a trainer for

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your cerebral cortex. It will repeatedly offer the stored information to the cerebral cortex with the result that this new input will be learnt and new programmes will be etched into the auditory cortex.

It will repeatedly offer the stored information to the cerebral cortex, resulting in the new input being learnt and new programs etched into the auditory cortex. It has been proved shown that regularly recurring musical structures act like a massage on certain areas of the brain. Where tinnitus is present, this will be experienced as a negative effect. However, you , the tinnitus sufferer, can turn this to your advantage by calling up your very own personalized music in your head. It is retrievable whenever you need it.

To achieve a positive activation of the various systems in the brain, the hearing experience needs to be

- pleasing and enjoyable
- corresponding to the tinnitus noise and the hearing loss.

This means that, the tinnitus sufferer, can influence your perception processes and learn to set up the reprogramming of your central auditory pathway.

## 2 The app's functions in detail

The following sections describe all controls of the various views in order of appearance if one presses the "forward"-button of the programs column heading panel beginning with the start view.

#### 2.1 The start view

If **tinnitus help** is started for the first time or if it did not run in background before (not in iOS3.x) the following view appears and a gentle bird's twitter can be heard:

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Figure 2-1: View after start of program

There are three buttons:

- Info
- Start
- the **tinnitus help** icon

By means of the button the program's version can be determined. E.g. in case of questions to the **tinnitus help** support this can be important. The display may show something like this:



Figure 2-2: Software version

By means of the button one gets back to the previous view.

Pushing the button or the **tinnitus help** icons leads to the next view "Selection of the language and introduction".

### 2.2 Selection of the language and introduction

If **tinnitus help** is started for the first time or if it did not run in background before (not in iOS3.x) the way leads via the start view, see above, to the following view. Here there are settings to do that only have to be once after the app's installation:

- Select your language: English or German
- Read the introduction

The settings are saved automatically.

Important: If tinnitus help is already started or runs in the background, this view is not accessible anymore. For this the app has to be closed down and restarted.



Figure 2-3: Selection of the language and introduction

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#### There are 7 buttons:

- Info
- Start
- English Flag
- German flag
- Operation
- Introduction
- I have read the introduction. Next ...

By means of the button the program's version can also be determined here, see section 2.1 "The start view".

Pushing the button leads to the main menu **tinnitus help** – but only if the user has read the short **introduction** and has confirmed this. The confirmation is necessary because here you can read important information concerning the handling of the app. Thus it is prevented that the user damages accidentally the ears.

The two **flags** serve for selecting the language. Depending on the selected language the buttons show an accordant caption. Pushing one of the flags lets the language toggle. It does not matter which flag is pushed.

Pressing the button opens the brief instruction – see section 1 "Short and precise: How to use tinnitus help" – with the possibility to load this complete document from the internet.

Pressing the button opens the introduction text with the possibility to confirm the attention.

Like the button of tinnitus help.

#### 2.3 The main menu

The main menu is the linchpin of **tinnitus help**. From here you can access all functions.

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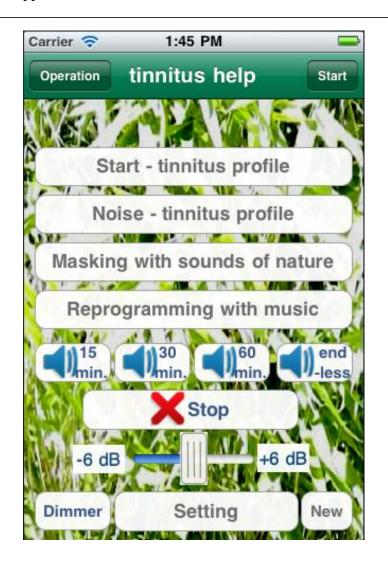


Figure 2-4: The main menu

From top to the bottom there are the following buttons:

- Operation
- Start
- Start tinnitus profile
- Noise tinnitus profile
- Masking with sounds of nature
- Reprogramming with music
- Timer 15 min / 30 min / 60 min / endless
- Stop
- +/- 6 dB
- Dimmer
- Setting
- New

Pushing the button opens the brief instruction – see section 1 "Short and precise: How to use tinnitus help" – with the possibility to load this complete document from the internet.

Pressing the button you are starting the pathway through the setting of **tinnitus help.** First of all the tinnitus profile of an eventually perceived tone has to be created, see section 2.4.1 "Tinnitusfrequency - left ear". The button Start - tinnitus profile does the same. Noise - tinnitus profile By means of the button one gets to the noise page. Crickets, cicadas and several noises can be added to the profile, see section 2.5 "Tinnitus-profile - Additive tinnitusnoise". Masking with sounds of nature is the page for adding one of many sounds of nature, see section 2.6 "Masking with sounds of nature". Reprogramming with music The page belonging to the button adding a piece of music from the **tinnitus help** collection as well as from the users library, see section 2.7 "Reprogramming with music". -less, the mixed set up With the timer setting will be played for the wished duration of treatment. After this time and a bit later the device will switch automatically to the sleep mode, see section 2.8 "Timer 15 min / 30 min / 60 min / endless". the playback of the actual mix is terminated, see With section 2.9 "Stop". By means of the slider the summary volume can be increased or decreased, see section 2.10 "+/- 6 dB". Dimmer shades the display, see section 2.11 "Dimmer". The button \

With the button one gets to an overview chart showing all settings. Furthermore different profiles can be loaded and saved, see section 2.12 "Setting".

The button resets a profile setting completely, see section 2.13 "New". **Tip:** The beginning of a new setup of **tinnitus help** starts advantageously by

pressing this button.

The mentioned functions are now described in detail.

### 2.4 Tinnitus-profile, Tinnitusfrequency

A lot of patients perceive whistling sounds on one or both ears. For their setting there are 4 pages available, beginning with the left ear.

- Tinnitusfrequency –left ear
- Vibrato/Tremolo left ear
- Tinnitusfrequency -right ear
- Vibrato/Tremolo right ear

### 2.4.1 Tinnitusfrequency – left ear

Starting point is the generation of an initially constant tone that corresponds to the perceived tone as far as possible. The following figure shows the view of this menu item:

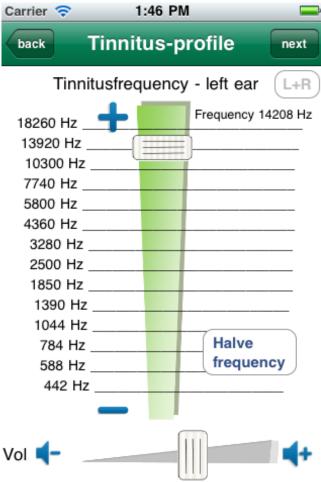


Figure 2-5: Tinnitus-profile, Tinnitusfrequency –left ear

From top to the bottom there are the following buttons:

- back
- next
- L+R
- Frequency Plus
- Frequency slider
- Halve respectively double frequency
- Frequency Minus
- Volume Minus
- Volume slider
- Volume Plus

The button leads back to the main menu, see section 2.3.

Pressing the button one gets to the following view <u>"Vibrato/Tremolo – leftear"</u>, see section 2.4.2.

The blue respectively grey marking indicates if the setting of right and left channel is linked together.

While the marking is blue, both channels are coupled and a setting provokes an identical setting of the other channel. A grey color indicates decoupling of the channels. Both channels can be set up independently.

Purpose of a left-right-coupling is an easier handling for patients who perceive the same noises on both ears.

Pressing the button lets the coupling toggle.

**Frequency Plus'**: Each pressing on this symbol increases the tone's frequency a little. This allows a fine setting. The frequency value appears right above in the view.

The **frequency-slider** provides to increase or decrease the tone's frequency.

**Halve respectively double frequency**: By means of this button the tone's frequency can be decreased or increased for an octave. Thus a higher setting precision is achieved.

Halve

**,Frequency Minus'**: Each pressing on this symbol decreases the tone's frequency a little. This allows a fine setting.

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**,Volume Minus'** : Each pressing on this symbol decreases the tone's volume frequency a little. This allows a fine setting.



The volume – slider volume.

provides to increase or decrease the tone's

**,Volume Plus'**: Each pressing on this symbol increases the tone's volume frequency a little. This allows a fine setting.

As described above pressing the button leads to the following page <u>"Vibrato/Tremolo – left ear"</u>, see next section.

#### 2.4.2 Vibrato/Tremolo - left ear

Many patients perceive a tinnitus tone that is not constant but varies in its frequency and or volume. For emulation of a frequency variation (vibrato) as well as a volume variation (tremolo) there are 2 sliders available.

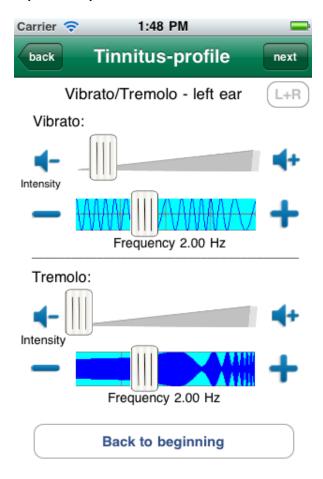


Figure 2-6: Vibrato/Tremolo – left ear

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From top to the bottom there are the following buttons:

- back
- next
- L+R
- Vibrato intensity
- Vibrato frequency
- Tremolo intensity
- Tremolo frequency
- Back to the beginning

The button leads back to the view <u>"Tinnitusfrequency – left ear</u>", see section <u>2.4.1</u>.

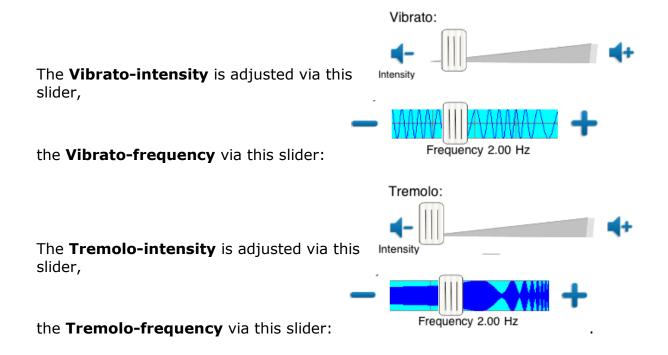
By pressing the button one gets to the following page <u>"Tinnitusfrequency</u> <u>right ear</u>", see section <u>2.4.3</u>.

The blue respectively grey marking indicates if the setting of right and left channel is linked together.

While the marking is blue, both channels are coupled and a setting provokes an identical setting of the other channel. A grey color indicates decoupling of the channels. Both channels can be set up independently.

Purpose of a left-right-coupling is an easier handling for patients who perceive the same noises on both ears.

Pressing the button lets the coupling toggle.

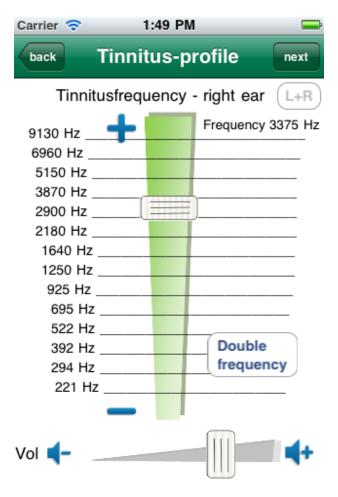


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### 2.4.3 Tinnitusfrequency - right ear

After an eventually perceived tinnitus tone is determined for the left ear the determination for the right ear follows in the same manner. The following figure shows the procedure:



**Figure 2-7:** Tinnitus-profile, Tinnitusfrequency – right ear

The operation does not differ from the left ear. For this reason it shall be pointed to the according section 2.4.1.

The button leads back to the view <u>"Vibrato/Tremolo – left ear</u>", see section 2.4.2.

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By pressing the button one gets to the following page "Vibrato/Tremolo – right ear", see the following section.

## 2.4.4 Vibrato/Tremolo - right ear

Vibrato und tremolo can be adjusted for the right ear too. The operation does only differ in miner things (see above). For this reason it shall be pointed to the according section 2.4.2. The following figure shows the view:

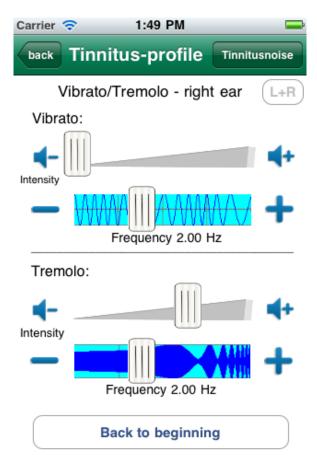


Figure 2-8: Vibrato/Tremolo – right ear

The button leads back to the view <u>"Tinnitusfrequency – right ear</u>", see section <u>2.4.3</u>.

Pressing the button one gets to the following page <u>"Tinnitus-profile – Additive tinnitusnoise</u>", see the following section.

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### 2.5 Tinnitus-profile – Additive tinnitusnoise

A lot of patients perceive e.g. cricket-, or cicada-like noises instead of tinnitus tones or additionally to them. Such noises can be added to the tinnitus profile with the following module:

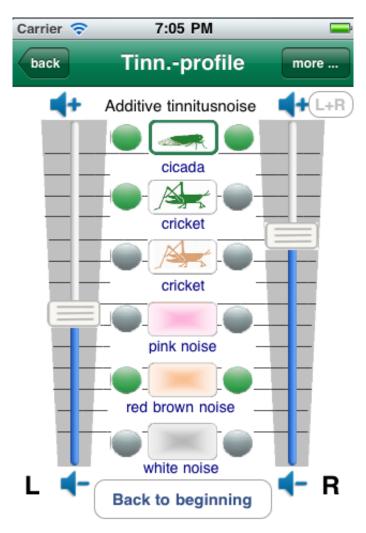


Figure 2-9: Tinnitus-profile - Additive tinnitusnoise, view 1

From top to the bottom there are the following buttons:

- back
- more ...
- L+R
- Volume sliders for the left and right channel
- Six noises with each
  - Selection switch for volume control
  - o On/Off switch and On/Off indicator for left and right
- Back to the beginning

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These controls shall be described in the following.

The button leads to the page from where this module was started. This is either the main menu see section 2.3 or the page "Vibrato/Tremolo – right ear", see section 2.4.4.

The button leads to a second view that is offering 6 further tinnitusnoises.

The blue respectively grey marking indicates if the setting of right and left channel is linked together.

While the marking is blue, both channels are coupled and a setting provokes an identical setting of the other channel. A grey color indicates decoupling of the channels. Both channels can be set up independently.

Purpose of a left-right-coupling is an easier handling for patients who perceive the same noises on both ears.

Pressing the button lets the coupling toggle.

By means of the **Volume sliders for the left and right channel** the volumes for the 6 noise types can be adjusted. The noise that volume is actually coupled with the sliders shows a green margin. In this example it is the cicada noise.

Each of the six noise groups consists of

• **Selection switch for volume control.** At any time the two volume sliders can be attached only to one noise. Which noise this actually is

indicates a green margin around the noise symbol, e.g. . By pressing another symbol this will get the green margin.

• On/Off switch and On/Off indicator for left and right. Left and right from the noise symbol button there is a green or grey point. The color green indicates that the noise next to it takes part in the mix. The point looks grey if the noise is not hearable in the mix.

The point becomes green if the volume for this noise is set to higher then zero. It turns to grey if the volume slider is set to zero (quiet).

A noise whose volume is not zero – and therefore takes part in the mix – can be switched off without changing the volume simply by pressing the green point. The noise can be reactivated by a further pressing on the point.

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The button Back to beginning

leads back to the main menu, see section 2.3.

As mentioned above the button leads to a second view that is offering 6 further tinnitusnoises:

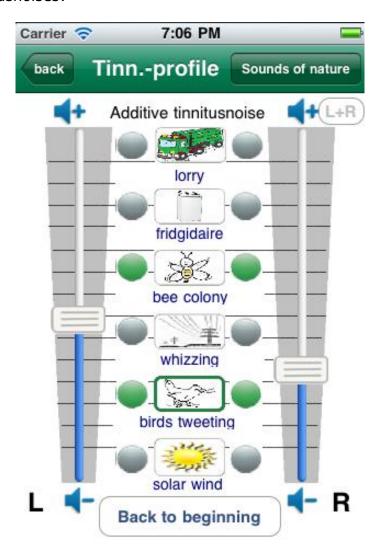


Figure 2-10: Tinnitus-profile - Additive tinnitusnoise, view 2

From top to the bottom there are the following buttons:

- back
- Sounds of nature
- L+R
- Volume sliders for the left and right channel
- Six noises with each
  - Selection switch for volume control
  - o On/Off switch and On/Off indicator for left and right
- Back to the beginning

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These controls operate in the same manner as described for the view "Additive tinnitusnoise, view 1".

The button leads to the view "Additive tinnitusnoise, view 1".

The button leads to the following page "Masking with sounds of nature", see next section 2.6.

## 2.6 Masking with sounds of nature

Sounds of nature are very relaxing for most people. **Tinnitus help** uses this effect for the treatment of tinnitus. The app offers a multisided range of sounds of nature. They can be added to the mix via the following program module:



Figure 2-11: Masking with sounds of nature

From top to the bottom there are the following buttons:

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- back
- Music
- L+R
- Volume sliders for the left and right channel
- Choose a sound of nature...
- Back to the beginning

These controls shall be described in the following.

The button leads to the page from where this module was started. This is either the main menu, see section 2.3 or the page "Tinnitus-profile - Additive tinnitusnoise", see section 2.5.

The button leads to the following page <u>"Reprogramming with music</u>", see next section <u>2.7</u>.

The blue respectively grey marking indicates if the setting of right and left channel is linked together.

While the marking is blue, both channels are coupled and a setting provokes an identical setting of the other channel. A grey color indicates decoupling of the channels. Both channels can be set up independently.

Purpose of a left-right-coupling is an easier handling for patients who perceive the same noises on both ears.

Pressing the button lets the coupling toggle.

Choose a sound of

ature...

By means of the **Volume sliders for the left and right channel** volumes of the chosen sound of nature can be adjusted.



The button opens a menu to choose a sound of nature from a list, see the following figure:

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Figure 2-12: Choosing a sound of nature

The button Back to beginning leads back to the main menu, see section 2.3.

As described above the button leads to the following page "Reprogramming with music", see next section 2.7.

## 2.7 Reprogramming with music

The active listening to relaxing music coming from natural instruments is very important for the treatment of tinnitus. This leads to an exaltation of metabolism processes in the brain, the auditory cortex is stimulated, the brain is reprogrammed, the tinnitus takes a back seat and the auditory perception is simultaneously enhanced.

**Tinnitus help** offers **several pieces of music**, which that are composed and produced especially for the treatment of tinnitus. They have proved themselves in therapeutic practice and it is highly recommended to test them for your own therapy.

Some persons prefer music from their own iPhone/iPod/iPad-library. At their desire the app offers the possibility to add a single piece of music or a whole ,Play-List' to a tinnitus profile setting. But please be careful about your choice of music: It should be really relaxing and if possible not produced synthetically. Note: The volume of music from the device-library can only be adjusted via the device's volume controls. If necessary the summary volume of sounds and music from **tinnitus help** and the music from the device-library can balanced via the  $\pm 1.6 \pm 1.00$  +Slider, see section  $\pm 1.00$ .

The view of this program module shows the following figure:

1:54 PM Carrier 🛜 back Music Setting Music for reprogramming ... choose here relaxing music from your device. Select music ... Music-Player On/Off OFF You hear: You hear: Moony Sound Back to beginning

Figure 2-13: Music for reprogramming

From top to the bottom there are the following buttons:

- back
- Setting
- Volume slider
- Select music ...
- ... choose here relaxing music from your device.
- Music-Player On/Off
- Back to beginning

They shall be described as follows:

The button leads to the page from where this module was started. This is either the main menu, see section 2.3, or the page "Masking with sounds of nature", see section 2.6.

The button leads to the page "Setting", see section 2.12.

By means of the **volume slider** the volume of the chosen music can be adjusted. But the slider affects only music from **tinnitus help.** Music coming

from the iPhone/iPod/iPad-library cannot be adjusted within the app.

Select music ...

Pressing the button opens a list to select a piece of music from the music library of **tinnitus help**:



Figure 2-14: Select music ...

... choose here relaxing music from your device.

Music-Player On/Off

Pressing the button opens a list to select a piece of music from the device's library. This dialog box is well known from the device's music player. Play-lists may be are arranged as well.

The switch offers the possibility to mute music that has been selected from the device's library. The music can be reactivated anytime by sliding the switch to ,ON' – of course only if some music was selected before. The following message says that the music player was switched ON without having chosen a piece of music.

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Figrue 2-15: Note: "No music chosen"

The button

Back to beginning

leads back to the main menu, see section 2.3.

#### 2.8 Timer 15 min / 30 min / 60 min / endless

For the treatment of tinnitus a repeated practice is important. A minimum should be a duration of 15 minutes daily – advantageously before going to bed.

According to the needs several durations can be selected by means of the buttons at once. It stops after the selected time is over or after pressing the button

After timer mode ends and a bit later the device will enter the sleep mode and switch off.

## 2.9 Stop

The button stops any playback. If **tinnitus help** is in timer mode the timer will be terminated, see the last section above.

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#### 2.10 + -6 dB

The slider allows the increase or decrease of the sum volume in the range +/- 6 dB. This corresponds to a double respectively halve volume. Changing the volume affects the whole mix. The volume relation between noises, sounds and music is not changed.

**Note:** The slider does not affect the volume of music that comes from the device's music player and the iPhones/iPods/iPads library.

#### The slider allows:

- a more precise setting of the sum volume than it can be done with the device's controls
- in case of playback from the device's library: balancing the volumes of the music player and the **tinnitus help** mix

#### **2.11 Dimmer**

Pressing this button shades the display. **Tinnitus help** is often used to fall asleep. Then a bright display can be disturbing. The function is intended for users of the older operating system iOS 3 because they cannot switch off the display by means of the hardware button (left, above) like iOS 4 users can.

## 2.12 Setting

Two views "Setting" give an overview about all contents of the actual profiles. Furthermore different profiles can be saved and reloaded. The following figure shows the first page:

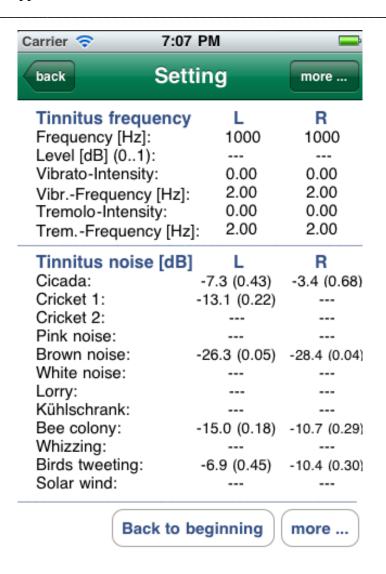


Figure 2-16: Setting, view 1

From top to the bottom there are the following buttons:

- back
- more ...
- Back to beginning
- more ...

The button leads to the page from where this module was started. This is either the main menu, see section 2.3, or the page "Reprogramming with music", see section 2.7.



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Carrier 🤝 7:33 PM Setting back Sounds of nature L R Level [dB] (0..1): -1.4 (0.85) -1.4 (0.85) Description: Dolphins under water Music L+R Level [dB] (0..1): -6.8 (0.46) Description: Shanti Profile name: My profile Load Title Save Back to beginning

Figure 2-17: Setting, view 2

If the actual profile contains music from the device's library (iPhone/iPod/iPad) this is indicated via the symbol , see the following sample:

Description:

Dolphins under water

L+R

Level [dB] (0..1):
Description:

L+R

-6.8 (0.46)

Shanti

From top to the bottom there are the following buttons:

back

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- Load
- Title
- Save
- Back to beginning

They shall be described as follows:

The button leads to the page from where this module was started. This is either the main menu, see section 2.3, or the page "Reprogramming with music", see section 2.7.

Pressing the button allows reloading of a profile saved via the button before. A profile contains all settings that were done. In both cases a dialog box opens to choose a profile:

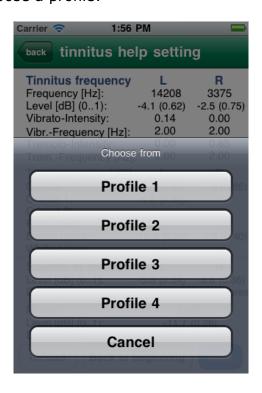


Figure 2-18: Setting – choosing a profile

The button leads to a dialogue to name a profile individually.

The column heading panel indicates the actual profile by toggling between



The button Back to beginning leads back to the main menu, see section 2.3.

#### 2.13 New

The main menu's button , see section 2.3, deletes all settings of the actual profile that have been performed and resets its to a starting condition. Because all volumes are zero the app is muted.

Doing this the actual profile is not overwritten. This happens not until saving the profile like described in section 2.12. As long a profile was not saved the former setting can be reloaded by pressing "reload", see section 2.12.

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