

NuTesla Sleep Study Shows Somnius™ Sleep Entrainment

During September through November of 2009 NuTesla conducted a sleep study of six individuals using an ambulatory sleep monitoring system to determine the effectiveness of the Rhythmedics® Somnius™ sleep entrainment instrument. The following report shows Somnius improved both the subjective and objective quality of sleep for all participants who reported sleep difficulties. These improvements were due to Somnius' unique method of non-invasively achieving brainwave entrainment emulating ultradian sleep rhythms.

The Somnius sleep entrainment instrument produces non-invasive electromagnetic pulses using a patent pending technique (called Bio-Pulses™) that follow naturally occurring ultradian sleep cycles. Two versions of Somnius were used in the study, one with a fixed 90 minute repeating sleep cycle and one with a reducing sleep cycle that starts at 110 minutes in duration and reduces by 6 minutes for each subsequent cycle. The purpose of the study was to determine if Somnius' Bio-Pulses induced brainwave entrainment to help the participants fall asleep faster and stay asleep longer and awaken feeling better. Brainwave entrainment occurs when brain activity follows some external stimulus. Objective measurements of brainwave activity using an ambulatory sleep monitor were used to determine Somnius' ability to affect the brainwave activity of the study participants.

The monitoring equipment consisted of a Bluetooth wireless brainwave monitoring head-band and a bedside receiver/recording device. The use of an in-home ambulatory sleep monitor allowed the study participants to sleep in their own bedroom environment. A baseline was first established for each participant consisting of monitoring his or her sleep cycles without any sleep medications and without Somnius.

The study included an 11 year old male, a 34 year old female, a 54 year old male, a 54 year old female, a 70 year old female and a 74 year old male. Baseline monitoring of all six individuals showed only the 11 year old male had healthy sleep cycles upon entering the study. The remaining five individuals had irregular sleep cycles, experienced frequent wake-up events throughout the night and had very little deep sleep time (stages 3 and 4 of sleep).

The 11 year old male was the only participant with normal sleep cycles upon entering the study. The use of Somnius did not interfere with his naturally occurring healthy sleep patterns and he was subsequently released from the study.

The 34 year old female reported she was able to fall asleep normally but did not feel that her sleep was very restful. Her baseline sleep monitoring revealed she experienced frequent wake-ups throughout the night and had irregular sleep cycles as a result. Her baseline sleep pattern before and after Somnius are shown later in this report.

The 54 year old female had previously been taking 5 milligrams of Ambien each night for the previous 5 years. Upon entering the study she stopped using Ambien. Prior to this study she had difficulty falling asleep without Ambien, her sleep cycles were irregular and she experienced frequent wake-ups throughout the night. With the use of Somnius she was able to fall asleep naturally and stay asleep longer and experienced

fewer wake-ups. When she did awaken during the night she was able to return to sleep quickly.

The 54 year old male participant felt he had normal sleep cycles upon entering the study. The first night of monitoring clearly showed his sleep cycles were irregular and he experienced frequent wake-ups and had difficulty sleeping more than 6 ½ hours. With Somnius his sleep patterns improved and he reported his overall quality of sleep was much better. Examples of his baseline and Somnius sleep patterns are included in this report.

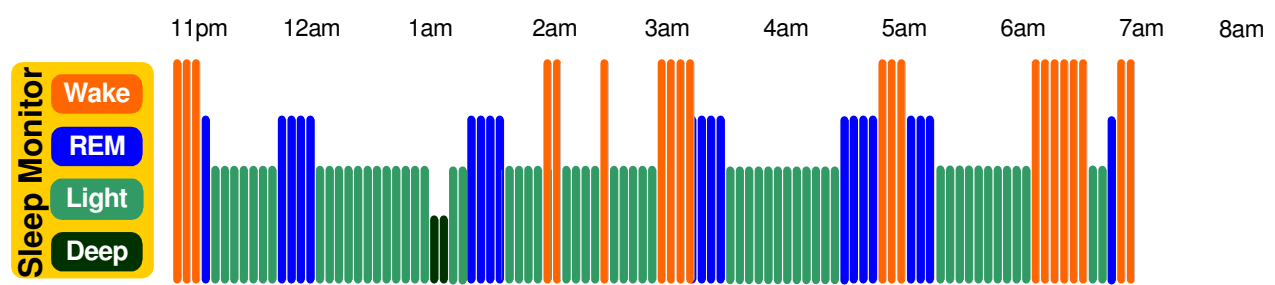
The 70 year old female was under the care of a physician for heart related issues and reported she had a difficult time falling asleep and staying asleep. This was clearly seen in her sleep monitoring. Somnius provide some improvements in her sleep, but due to her underlying medical conditions she was subsequently excluded from the study.

The 74 year old male had difficult sleeping and experienced frequent wake-ups during the night due to prostatitis necessitating the emptying of his bladder. With Somnius he experienced fewer wake-ups and it helped him return back to sleep more quickly after getting up to empty his bladder. Examples of his baseline and Somnius sleep patterns are included in this report.

For the purposes of this study the start of sleep times have all been normalized to 11PM. Actual bedtimes ranged from 10PM to 1AM. The following results are for three of the six participants. The ambulatory sleep monitoring equipment recorded brainwave activity and reported it in five minute segments and averaged each 5 minute segment and assigned that segment to one of four stages of sleep, ranging from awake to deep sleep. These are color coded in the resulting graphs. When Somnius was used an additional graphical representation showing the brainwave frequency generated is superimposed above the sleep monitoring graph. To the left of each graph is a color coded key identifying the frequency range for Somnius, or recorded sleep cycle range for the monitoring equipment.

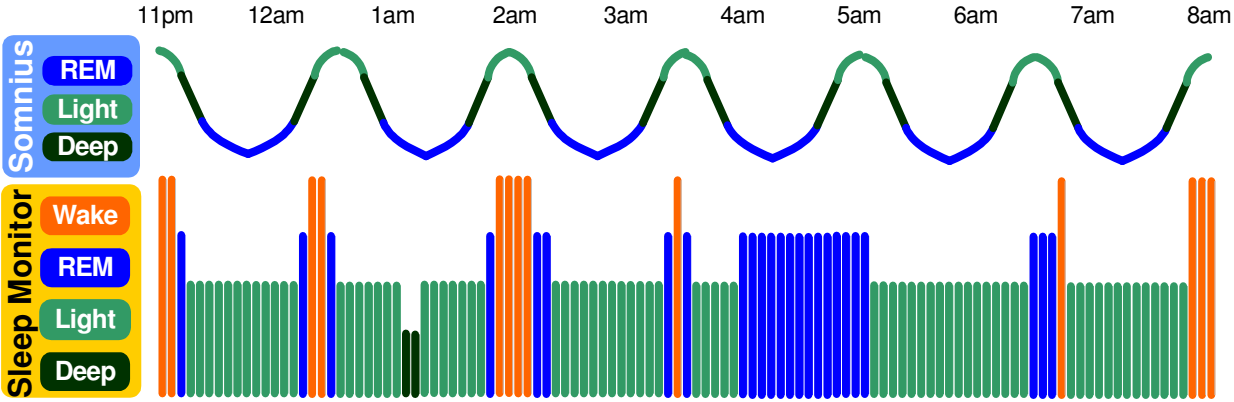
The first graph is for the 34 year old female study participant showing her baseline sleep monitoring before using Somnius.

34 Y/O Female, Baseline Sleep Pattern, Limited Deep Sleep, Frequent Wake-ups



This graph shows the participant fell asleep in 15 minutes, but only had one period of deep sleep. Additionally, she woke up frequently starting at 2AM. The following graph shows the same participant's sleep cycles the first night with Somnius running a fixed repeating 90 minute sleep cycle. Subsequent nights with Somnius showed improved entrainment.

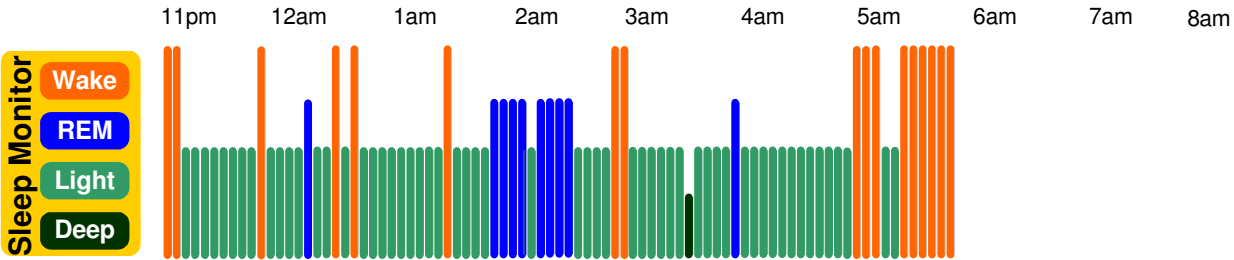
34 Y/O Female, First Night w/ Somnius Showing Sleep Entrainment



The graph above shows the Somnius Bio-Pulse frequencies between the time stamps and sleep monitoring graph. The participant fell asleep 33% quicker and sleep entrainment is clearly seen to follow until the long period of REM that started just after 4AM. Sleep entrainment recurred after that period and continued until the subject woke up at the end of the sleep cycle. The participant reported her sleep was much improved and she felt more rested.

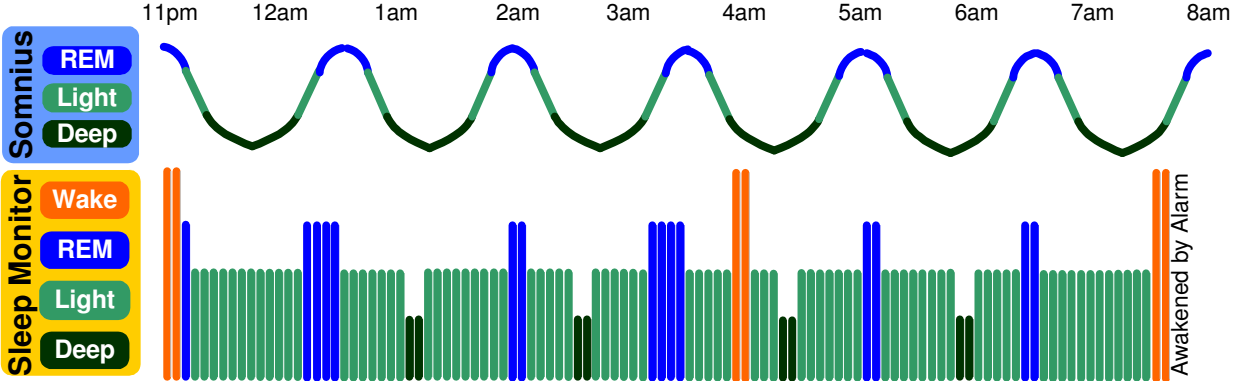
The following graph is for the 54 year old male and shows his baseline sleep pattern upon entering the study.

54 Y/O Male, Baseline Sleep Pattern, Limited Deep Sleep, No Regular Sleep Rhythm



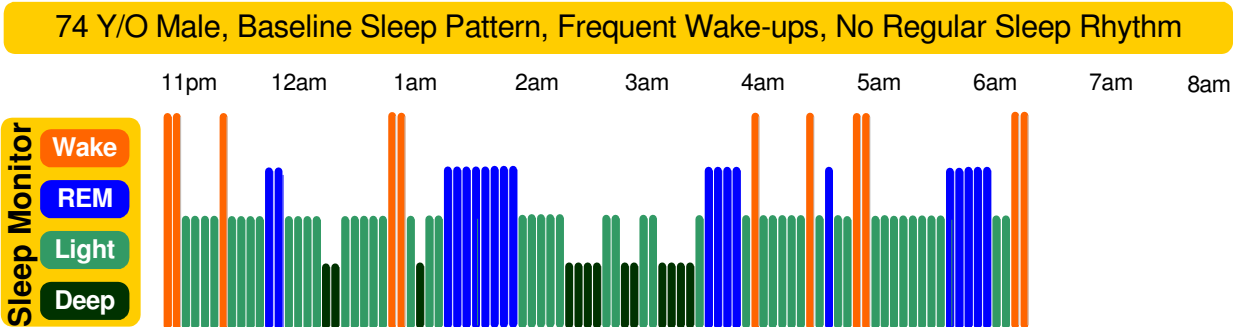
The baseline graph above shows the participant fell asleep in 10 minutes but had frequent wake-ups throughout the night and only one period of deep sleep. Also note there is no regularity to the participant's sleep pattern. The following graph is for the same participant now using Somnius with the fixed 90 minute repeating sleep cycles.

54 Y/O Male, Using Somnius Showing Sleep Entrainment

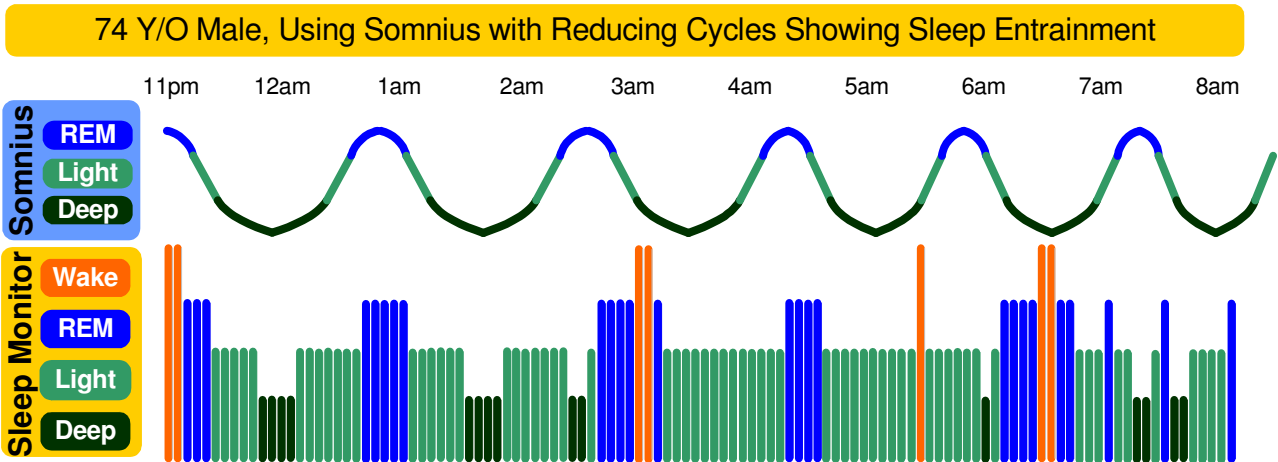


Sleep entrainment in the above graph can clearly be seen as well as the improved deep sleep cycles that are now 8 hours in length.

The following graph is the baseline sleep study monitoring session for the 74 year male study participant.



The following graph is for the same 74 year old participant with Somnius running a gradually reducing sleep cycle that ranges from 110 minutes at the start fo the sleep period to 75 minutes at the end.



Sleep entrainment is clearly shown in the first half of the sleep period. When the participant woke up at 3 am to empty his bladder the sleep entrainment was disrupted briefly but quickly resumed as shown by the 4:30AM REM period. The participant had to empty his bladder again at 6:30AM and sleep entrainment resumed until the participant awoke at 8AM.

In summary, Somnius induces brainwave entrainment which leads to falling asleep faster, stay asleep longer and having an overall better night's sleep.