

New Research Shows Nightingale Smart Home Sleep System Helps Users Fall Asleep 38% Faster

Research conducted by Harvard Medical School and Brigham and Women's Hospital in Boston, MA between June 2016 and February 2017.

Conclusion: In an experimental model of transient insomnia, exposure to the Nightingale® system significantly reduced sleep onset latency by 38% compared to normal environmental noise in a group of healthy subjects.

Original Abstract:

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Effect of Background Noise on Sleep Quality

Author Block: Taranto-Montemurro, L.·Messineo, L.·Sands, S.·Azarbarzin, A.·Marques, M.·Wellman, A.
Brigham and women's Hospital - Harvard Medical School
Boston, MA.

Abstract:

Introduction: Indoor and outdoor noise are major causes of sleep disruption in western countries. Previous research has shown that administration of constant white noise may improve sleep quality by increasing the acoustic arousal threshold. Small trials and anecdotal findings suggest that white noise may also influence the brain electrical activity and improve sleep quality by reducing sleep onset latency and promoting a deeper sleep.

Methods: In an ongoing trial, eight healthy subjects were studied with two clinical polysomnographies approximately one week apart. They were exposed in random order to normal environmental noise (40.9±0.9 dB) or to a louder (45.3±1.2 dB, p<0.001) constant filtered white noise provided by 4 speakers (Nightingale® system Cambridge Sound Management, MA). A model of transient insomnia was determined by the sleep anticipation in 90 minutes from usual bedtime. The subjects were allowed to sleep for the same amount of time on both nights. The sleep studies were analyzed by an experienced sleep technician blinded to the treatment allocation.

Results: When exposed to filtered white noise, the subjects showed a strong trend for a shorter sleep onset latency measured as the first epoch of non-REM stage 2 sleep (20.9±16.7 vs. 45.4±64.2 mins, p=0.078; mean 38% reduction). Total sleep time was unchanged between white noise and control nights (448±62 vs. 451±90 mins, respectively, p>0.5) as well as sleep efficiency (84±7 vs. 83±13 % time in bed, p>0.5) and sleep architecture (p>0.5).

Conclusion: In an experimental model of transient insomnia, there was a trend for a reduction in the sleep onset latency by ~40% when subjects slept with a background of filtered white noise compared to normal environmental noise. If confirmed at study completion, these findings will suggest that filtered white noise can be used to minimize sleep-onset insomnia.