SLEEP MONITORING

via wearable technologies

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TECHNOLOGY PORTFOLIO FOR MEDICAL AND WELLNESS APPLICATIONS
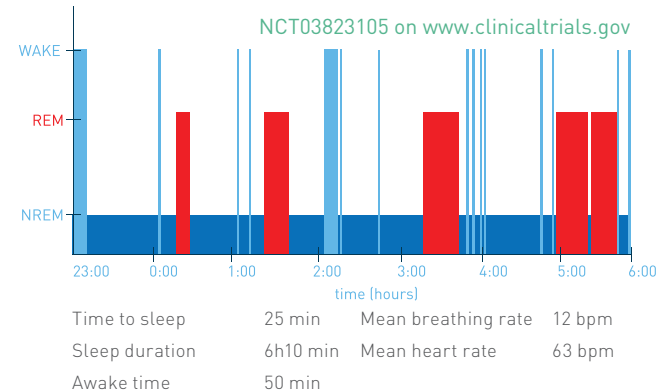
Technology

Sleep is an important process which helps to restore various vital processes of our body during the night. Sleep disorders—such as insomnia or sleep apnea—can have serious adverse health effects and the sooner they are diagnosed the better. Watch-based solutions overcome limitations of polysomnography by enabling low-cost and long-term sleep monitoring.

Signals and features

The heart is tracked and its beat-to-beat intervals (RR) are estimated using advanced multi-modal signal processing techniques. These provide three essential cardiovascular features (heart rate, heart rate variability and breathing rate) as well as an actigraphy profile while in bed (position and level of activity).

Key advantages

- Unobtrusive solution, suitable for long-term monitoring
- Algorithms validated in clinical studies
- Low-power sleep tracking
- Wide range of expertise from optical sensor design to algorithm development and validation

NCT03823105 on www.clinicaltrials.gov

Time to sleep	25 min	Mean breathing rate	12 bpm
Sleep duration	6h10 min	Mean heart rate	63 bpm
Awake time	50 min		

Sleep profile

This sleep-dedicated watch allows the extraction of clinically accepted sleep parameters and a complete sleep profile, including: time to sleep, sleep duration, quality of sleep indices, night fragmentation, and sleep cycles. It can also differentiate between sleep stages, such as wake, rapid eye movement (REM), and non-rapid eye movement (NREM).

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