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Effects of a sleep cycle based temperature control on sleep quality

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ABSTRACT

Nine male participants were instructed to live regularly for one week before the experiment and sleep in a sound proof room for six nights successively after that period. The first three nights were spent for the adaptation of the experimental settings. The baseline room temperature was set by the declaration of each participant. A unique sensor installed between a mattress and a bed detects body movements and heart beats during a sleep. These data were used to identify each participant's sleep rhythm. The temperature was set to the constant baseline degree in the control condition (CTRL). On the contrary, the temperature was shifted up by 1 degree from the baseline during REM stages in the experimental condition (EXP). A polysomnographic (EEG, EOG and EMG) evaluation of sleep quality was done. Subjective feelings of thermal sensation and subjective sleep quality indexes were obtained also. In results, % stage I was significantly smaller and the percentage of slow wave sleep plus REM sleep was significantly larger in EXP than CTRL. These results suggest that the temperature control based on sleep cycle provides a better sleep quality even though the subjective sleep quality indexes show no significant difference between two conditions.