

Mathematical modeling to analyze sleep quality of shift workers

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ABSTRACT

Shift work disorder occurs when people have difficulty in adjusting to work schedule and feel sleepiness during the work time. In this talk, I will describe how we used a mathematical model to a critical factor that determines the daytime sleepiness of shift workers. Specifically, the actigraphy data of 15 rotational shiftwork nurses and 15 day-fixed nurses are analyzed using the mathematical model describing the interaction between circadian rhythms and sleep process. Finally, I will describe how the mathematical model can be used to propose an optimal sleep and wake up time for shift workers.