

# Sleep Medicine

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## Actigraphy

An actigraphy is a watch-like instrument, which is normally worn on the non-dominant arm (figure 1), sometimes leg. It is a very sensitive motion logger, useful in assessing sleep and wake patterns over a period of days, sometimes weeks.

It is based on the principle that in a sleeping person the average motor activity is markedly reduced compared to an awake person. This seems to apply even to people who are in bed awake but moving little (insomnia), although the accuracy in that situation is reduced.



Some of the actigraphy vary in sophistication. Some also allow to measure light exposure and others have an event button which allows marking of possible situations such as lights off or waking up time.

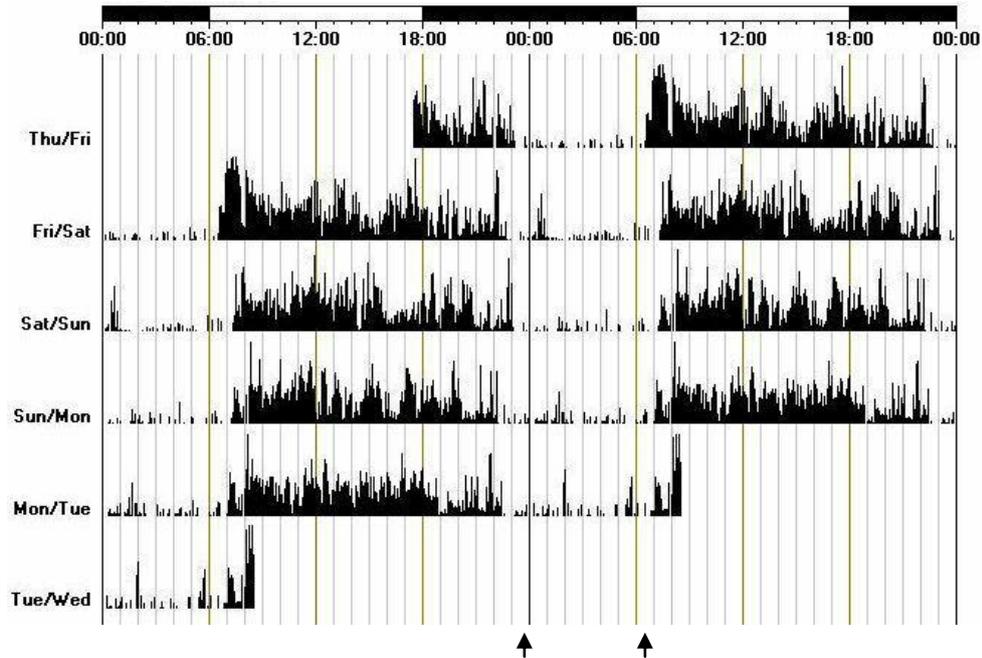
The actigraphy is used for the following applications.

1. **To assess sleep prior to a sleep study.** It has been shown that if you compare a sleep diary with an actigraphy the sleep diary tends to be less accurate and the patient tends to overestimate the amount of sleep that they have obtained by about an hour, sometimes 1.5 hours. Particularly in cases of investigation of sleepiness exclusion of prior sleep deprivation becomes essential and the actigraphy is the preferred instrument for assessment.
2. **Circadian sleep disorders.** Actigraphy is the instrument of choice for assessment of sleep disorders associated with body clock problems such as delayed sleep phase syndrome and irregular 24 hour rhythm (see fig 2, 3 & 4).
3. **Investigation of periodic limb movement disorder.** The actigraphy has been used, specifically applied to the leg, in people with periodic limb movement disorder. This has mostly been in a hospital setting.

4. Investigation of sleep and wake in special populations such as hospitalised patients and geriatric unit.

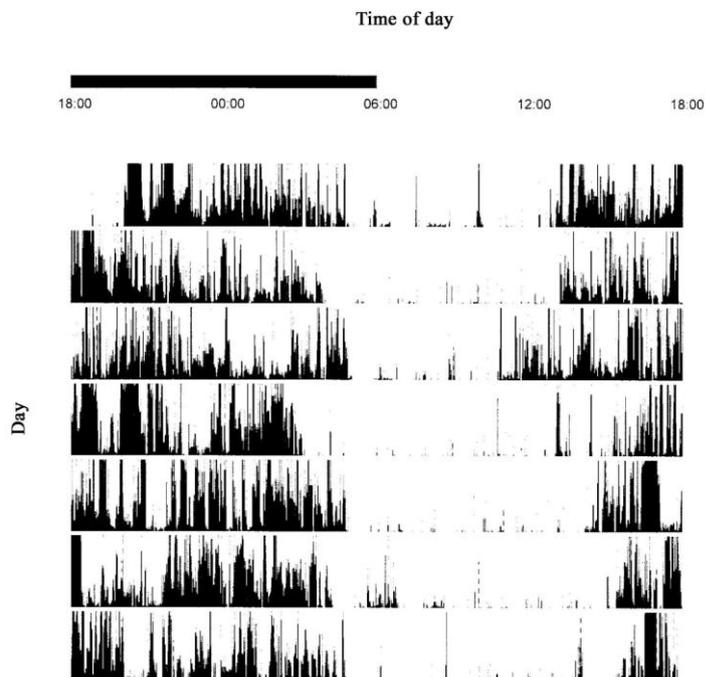
*Example of actigraphy:*

Regular sleep-wake pattern

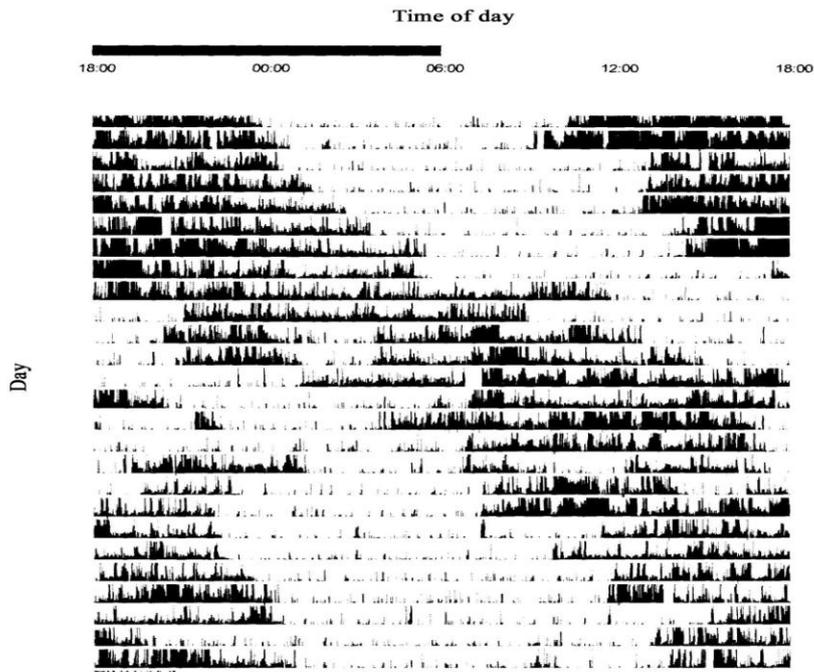


First arrow is midnight, the second 6am

Delayed sleep phase syndrome : Falling asleep 5am, getting up 11am-1pm



Non 24 hours cycle: falling asleep progressively later each day(a day of 25 hours and the body unable to re-adjust the clock).



Irregular sleep-wake pattern: no recognizable rhythm

