

Atigraphy

Actigraphy refers to the assessment of activity patterns by devices used to record body movement. Actigraphy has been used for over two decades as an outcome measure in sleep disorders research (i.e., insomnia, circadian rhythm disorders, sleep-related breathing disorders, restless leg syndrome, and periodic limb movement disorder). Actigraphy devices are typically placed on the wrist and are worn continuously for at least 24 hours. The activity monitors may also be placed on the ankle for the assessment of restless leg syndrome, or on the trunk to record movement in infants. Activity is usually recorded for three days or more, and can be collected continuously over extended time periods with regular downloading of data onto a computer for display and analysis. The algorithms for detection of movement are variable among devices and may include “time above threshold,” the “zero crossing method,” or digital integration” method, resulting in different sensitivities. The digital integration method reflects both acceleration and amplitude of movement; this form of data analysis may be most commonly used today. Data on patient bed times (lights out) and rise times (lights on) are entered into the record from daily patient sleep logs or by patient-activated event markers. Proprietary software is then used to calculate periods of sleep based on the absence of detectable movement along with movement-related periods of wake. In addition to providing graphic depiction of the activity pattern, device-specific software may analyze and report a variety of sleep parameters including sleep onset, sleep offset, sleep latency, total sleep duration and wake after sleep onset.

There are numerous actigraphy devices that have received U.S. Food and Drug Administration (FDA) approval through the 510(k) process.

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Atigraphy can be used to alert officials of the criminal justice system of possible offender drug use by monitoring the sleep patterns of individuals under supervision.