



SNS COLLEGE OF TECHNOLOGY

(AN AUTONOMOUS INSTITUTION)

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Department of Biomedical Engineering

Course Name: **19BM0302 & WEARABLE TECHNOLOGIES**

Topic : Pedometers
Semester :6

19BM0302/Wearable Technology /Pedometers/Mr.S.Prince Samuel /AP/BME



PEDOMETER

A Pedometer is a portable and electronic or electromechanical device that counts each step a person takes by detecting the motion of the person's hips.

Vision Tit 2

Vision Title 3





NEED FOR PROMOTIONAL PEDOMETERS

- Promotional pedometers are a great gift to promote a healthy lifestyle
- With obesity on rise and diet industry becoming big business, it makes sense to promote healthy lifestyle.
- Walking is cost effective and low impact exercise that fits into your day.
- Promotional Pedometers, thus, become great way to promote healthy lifestyle.

Vision Tit 2

Vision Title 3

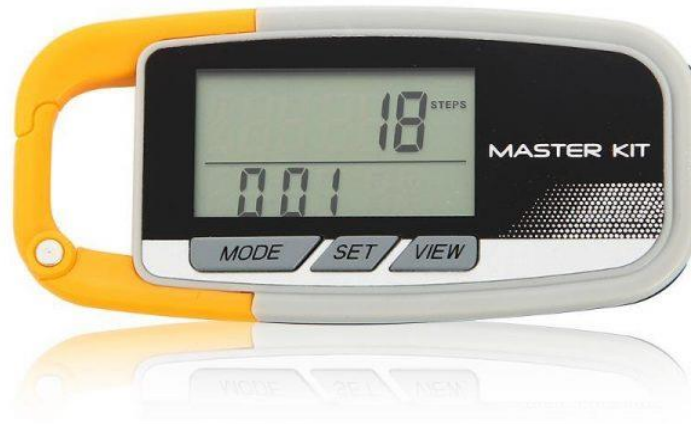




TYPES OF PEDOMETERS

The operation of the step meter depends on the type of device. They are of three types:

- Mechanical.
- Electronic.
- Hybrid (electromechanical)





MECHANICAL PEDOMETER VS ELECTRONIC PEDOMETER

A step counter with a mechanical base is quite simple in the device and has existed for many decades. Its principle of operation is based on the operation of a swinging pendulum - a load on a spring connected to a gear. At each step of its carrier, the load moves and scrolls the gear exactly one tooth. A system connected to the dial drives the hands of the device, noting the distance traveled or the number of steps.

Meters of this type are morally obsolete, they are almost everywhere replaced by more advanced electronic counterparts.

The most accurate measuring instruments today are electronic or digital. They are able not only to measure the distance / number of steps taken by themselves, but also to verify readings with satellite navigation. In the latter case, the distance traveled will be as accurate as possible to one meter. The device also determines the speed of movement to the details and shows the trajectory of movement.

A digital step meter is often equipped with a program that can calculate the number of calories burned, and also sets an individual load plan.



OBJECTIVE FIELD MEASUREMENT OF SLEEP AND PERFORMANCE

- Palm OS Psychomotor Vigilance Test (PVT)
 - 10 minute test
- Work/Sleep Log
 - Sleep periods
 - Start/Stop times of shift
- Actigraph watches
 - Wear 24hrs/day
 - Monitors sleep
 - More reliable than self-reported sleep
 - Equivalent to polysomnography in measuring total sleep time / 24 hours

Vision Tit 2

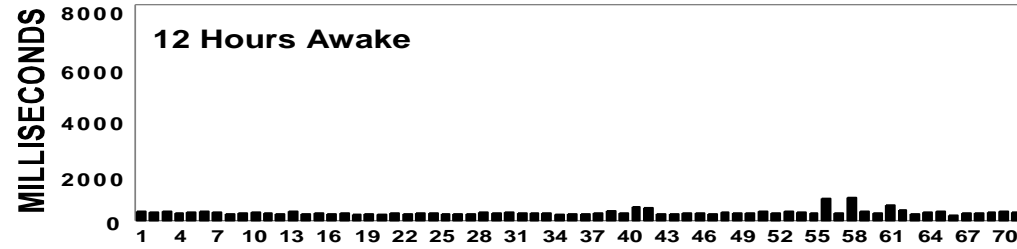




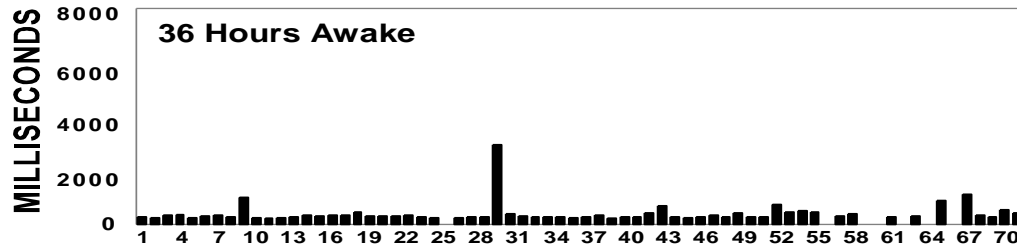
EFFECT OF SLEEP LOSS ON PERFORMANCE ON THE PSYCHOMOTOR VIGILANCE TEST (PVT)



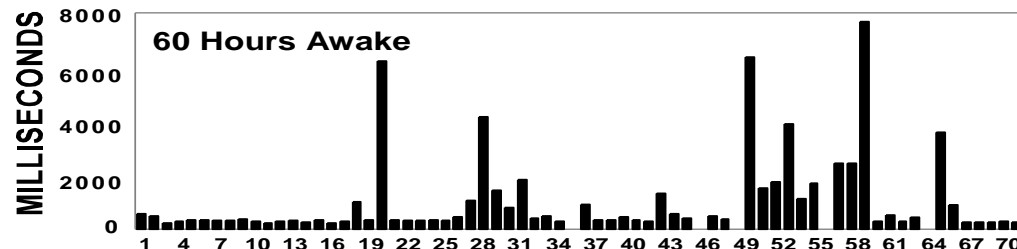
12 Hours
Awake



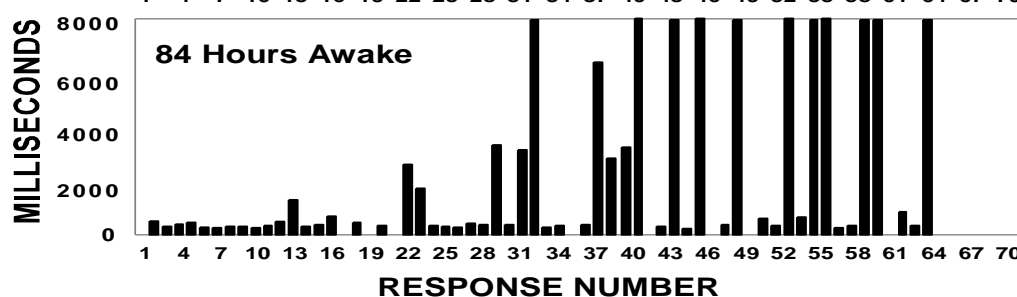
36 Hours
Awake



60 Hours
Awake



84 Hours
Awake



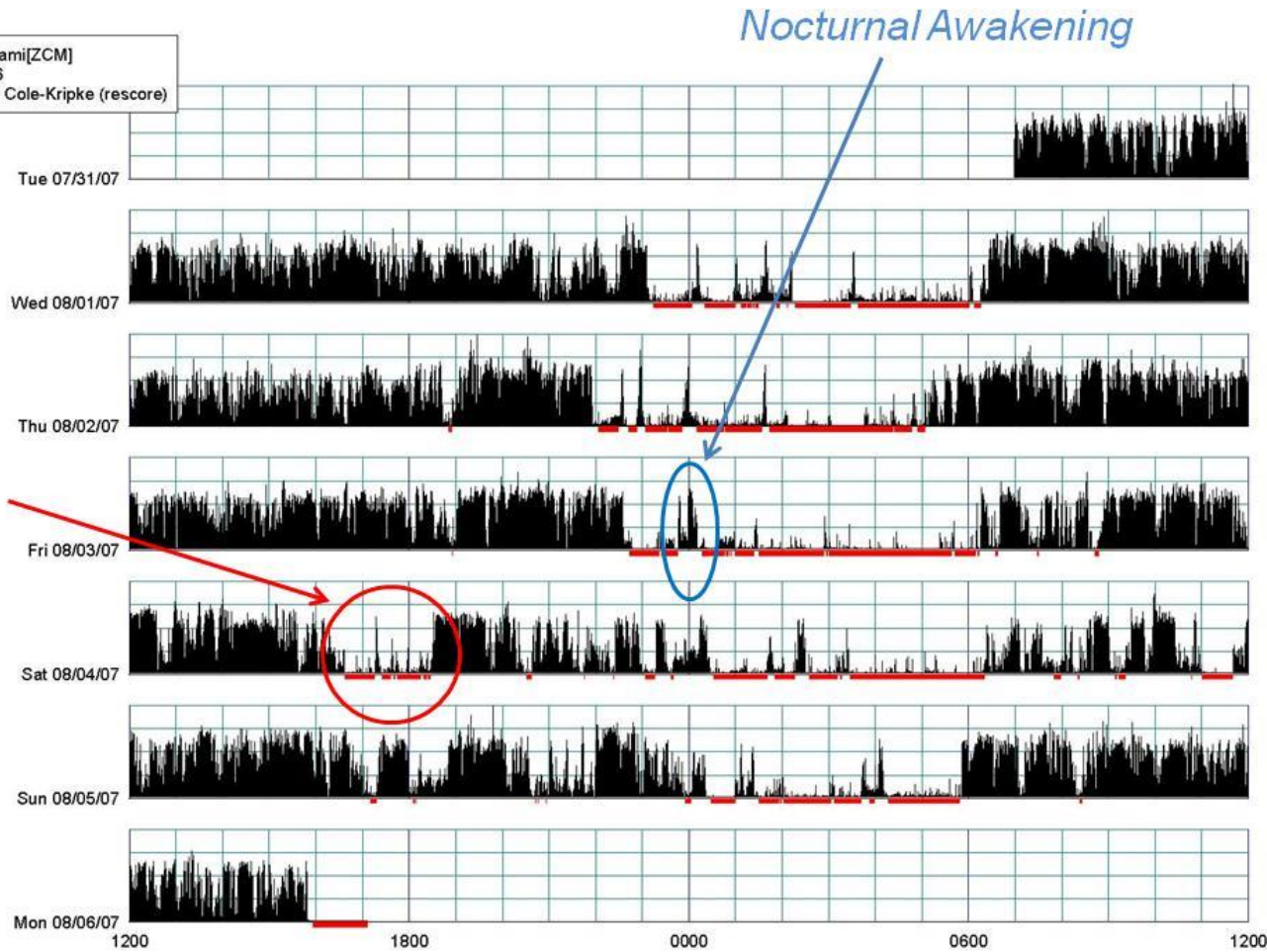
Vision Title 3



DATA



File: GB1.amj[ZCM]
Scale: 456
Algorithm: Cole-Kripke (rescore)



Vision Title 3

:S.Prince Samuel /AP/BME

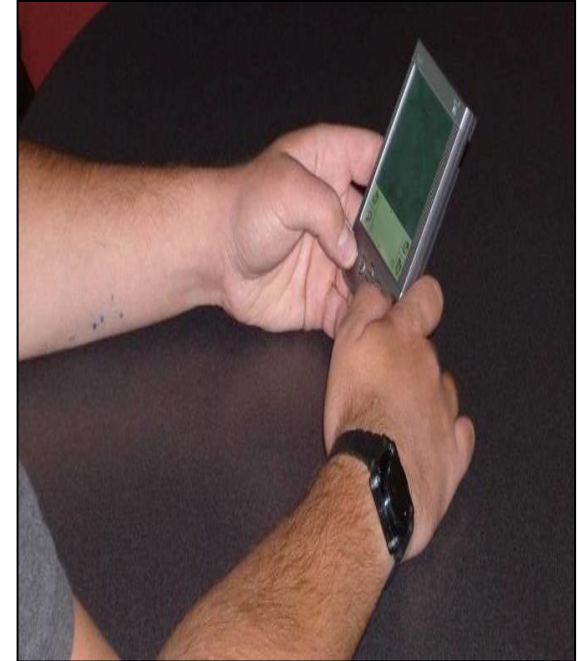


FATIGUE RISK MANAGEMENT SYSTEM (FRMS)



- Five-tiered defense-in-depth to prevent fatigue-related errors, incidents, and accidents
- Tier 1 – Does system of shift timing and duration allow for adequate opportunity for sleep?
 - Computer-based rostering
 - Predictive modeling
- Tier 2 – Do employees take advantage of the sleep opportunity?
 - Self-report
 - Wrist-worn actigraph (sleep watch)
- Tier 3 – In the workplace, do they maintain adequate alertness and performance?
 - Self-report & co-worker report
 - Palm Pilot-based Psychomotor Vigilance Task (PVT)
 - Embedded performance metrics
- Tier 4 – Are there errors, near misses?
- Tier 5 – Are there incidents and accidents?

Vision Tit 2



A top-down view of a white card with the words "Thank you" written in purple cursive. The card is placed on a light-colored marble surface. To the left is a bouquet of purple flowers. To the right is a black pen with a white polka-dot grip and a small gift wrapped in white paper with a red and white striped ribbon. A spool of the same ribbon is in the top right corner.

Thank
you