

# Making Policy with Data

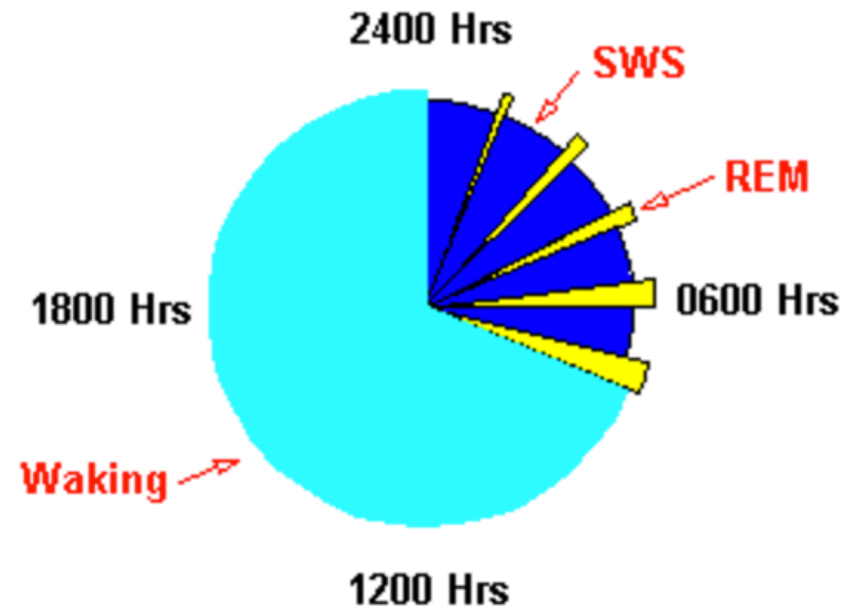
*An Introductory Course on Policy Evaluation*

## **Policy Briefing**

Instructor: Prof Yiqing Xu  
May 9

# Sleep/Wake Cycle

- Sleep restores brain function and clears out toxins accumulated in brain, sustaining performance during subsequent waking
- **REM:** Rapid eye movement
- **SWS:** Slow wave sleep

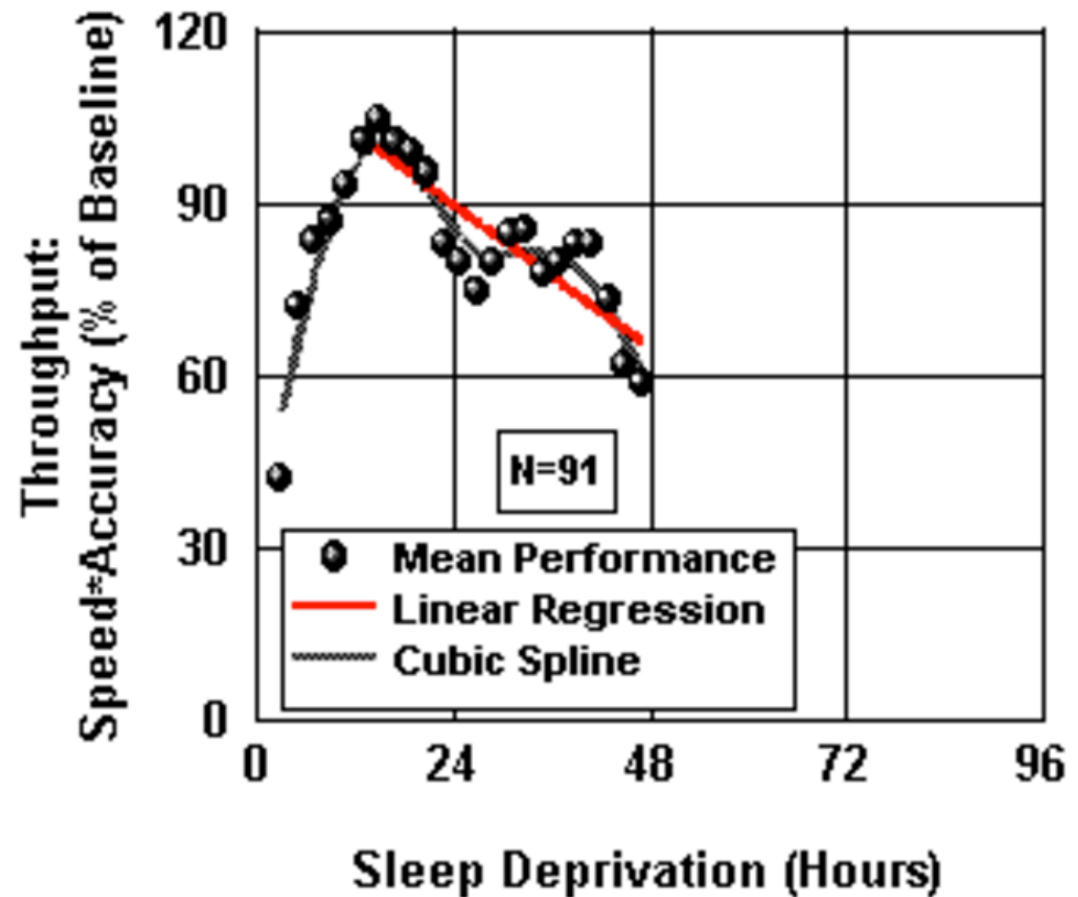


Gregory Belenky:

<http://isme.tamu.edu/JSCOPE97/Belenky97/Belenky97.htm>

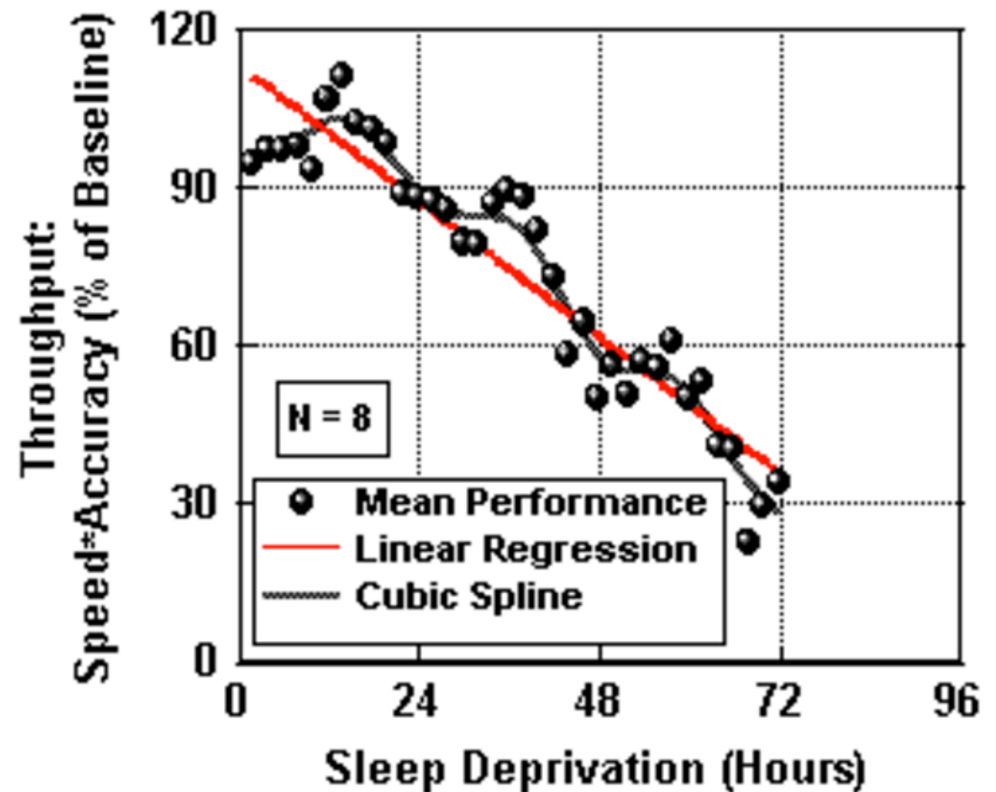
# 48-hour Sleep Deprivation

- Serial addition/subtraction
- N = 91
- Not an RCT
- (1) Learning curve
- (2) Cognitive performance goes down
- (3) Circadian rhythm still matters



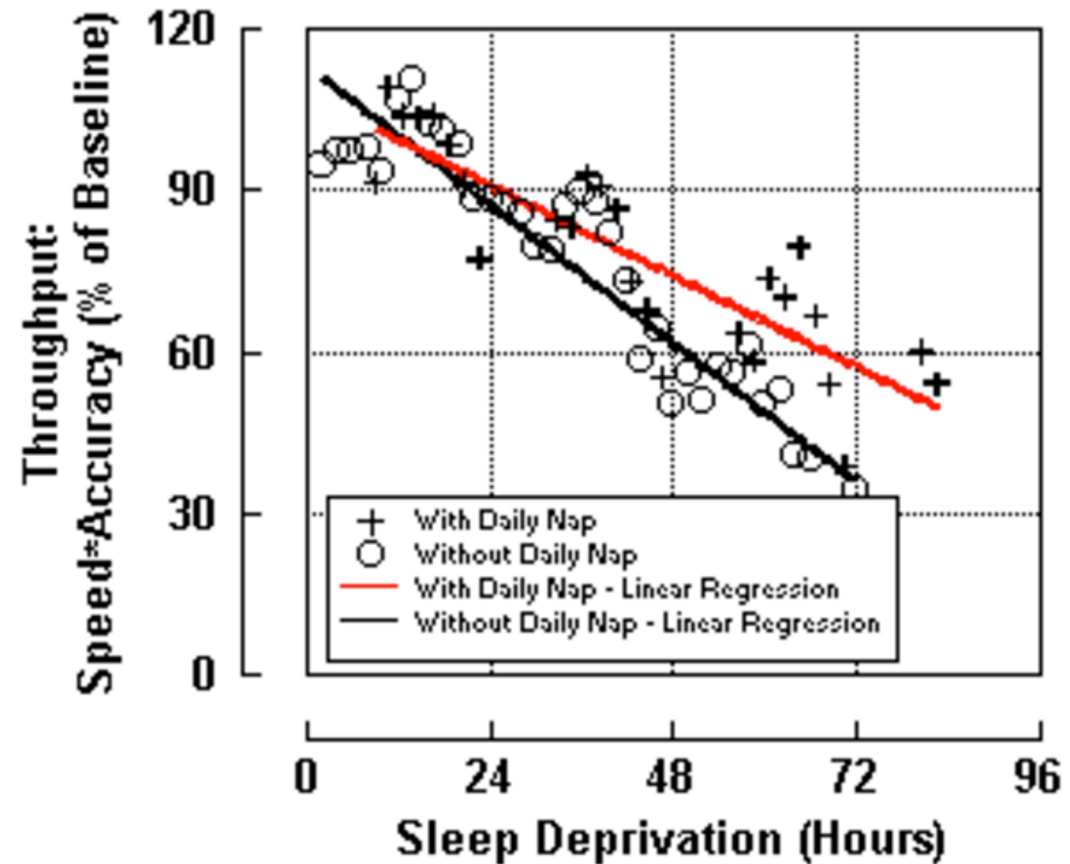
# 72-hour Sleep Deprivation

- pre-trained computer-based performance tests
- Not an RCT
- Cognitive performance goes down in a almost linear fashion!



# Nap helps — Daily Nap in 72-hour Sleep Deprivation

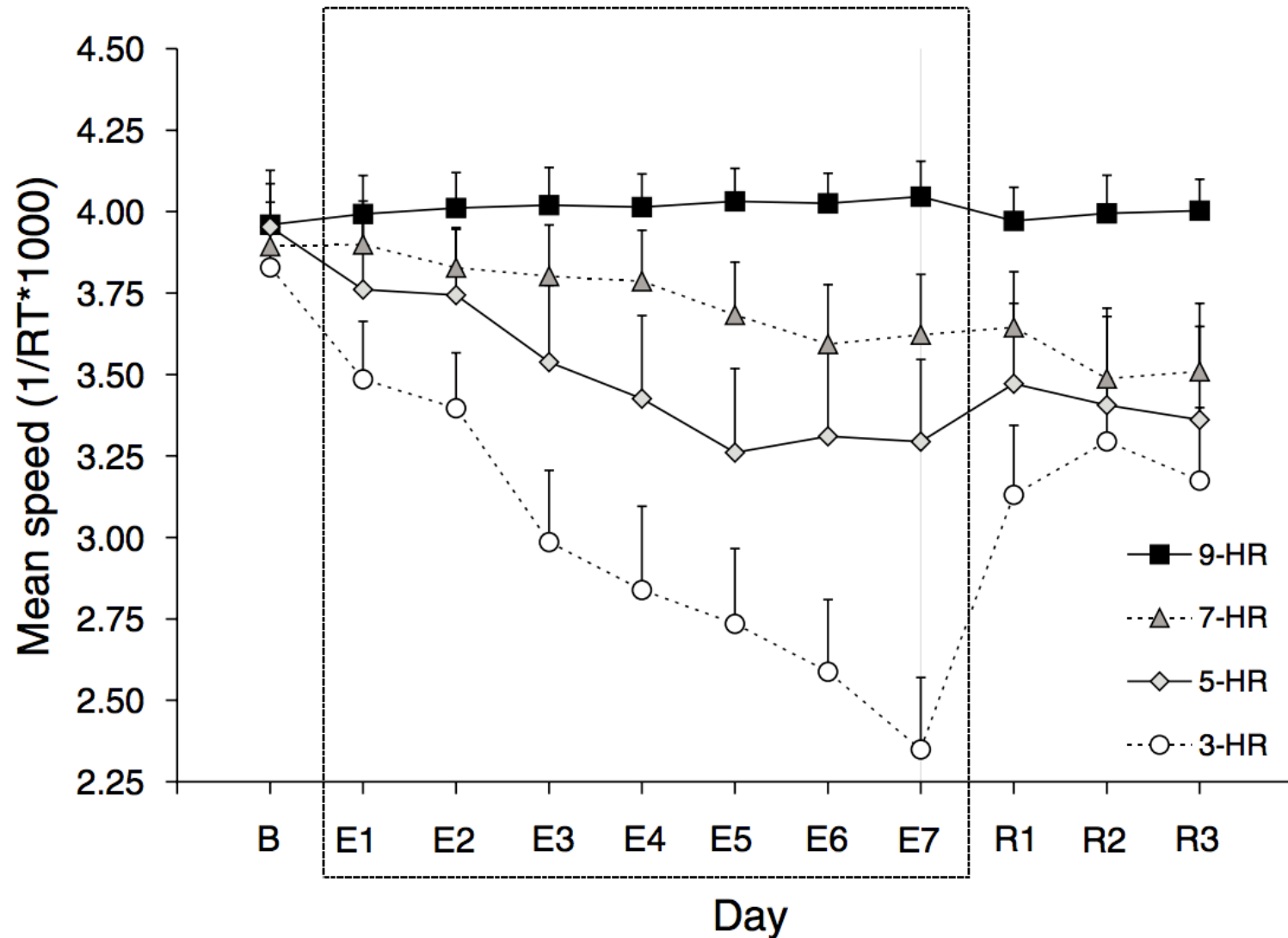
- **Without daily nap** vs. **With daily nap**
- Brief, fragmented sleep has little or no recuperative value, and is similar to total sleep deprivation in its effects on performance.



# Long-term Sleep Deprivation

## psychomotor vigilance task speed

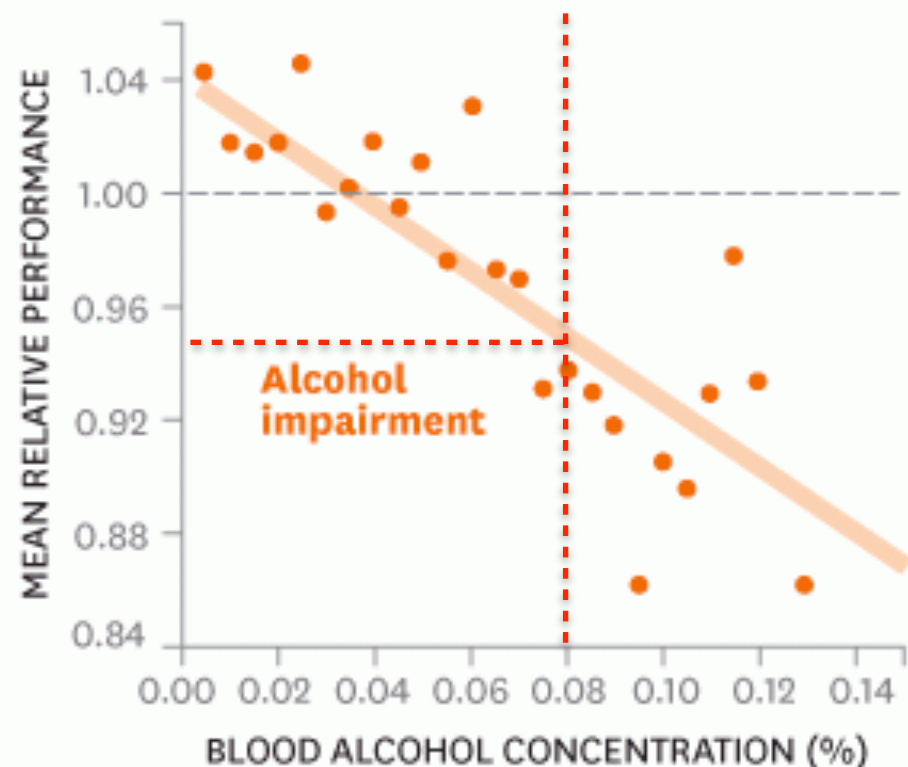
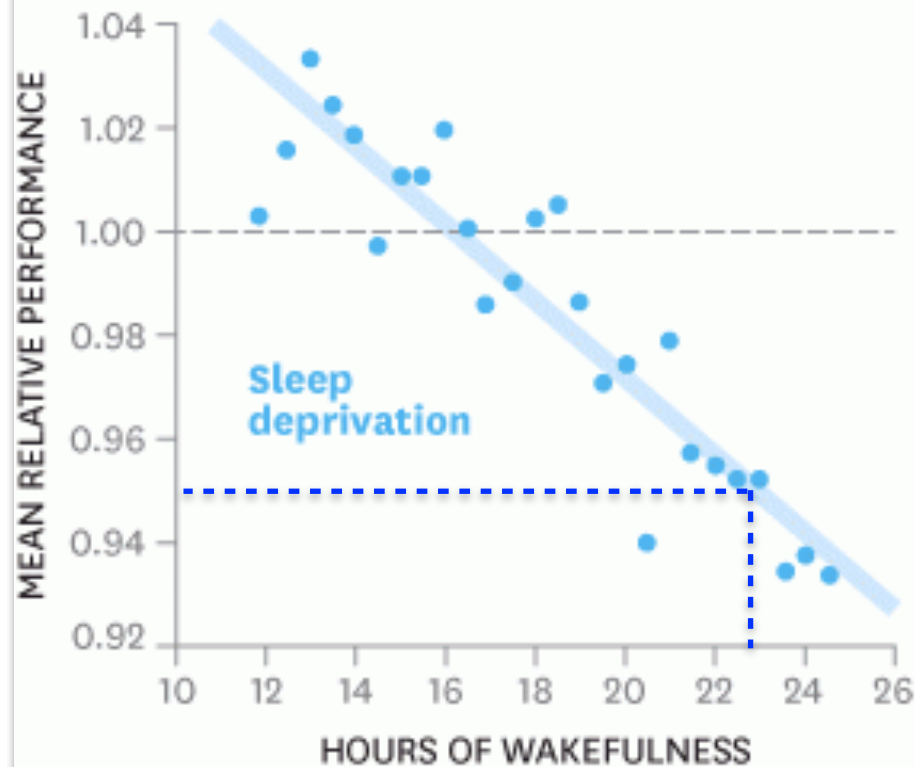
Belenky et al.



# Sleep Deprivation = Drunk!

## THREE SHEETS TO THE WIND

Research shows the effect on performance of even a moderate level of fatigue is equivalent to or greater than what is considered acceptable for alcohol intoxication.



**SOURCE** DREW DAWSON AND KATHRYN REID'S "FATIGUE, ALCOHOL, AND PERFORMANCE IMPAIRMENT," *NATURE* VOL. 388, JULY 1997.

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**Buzzword: Crowdsourcing**



# Crowdsourcing

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- Internet users contribute to needed services or ideas sometimes even without knowing it
- **Why?**
  - Millions of heads are better than one
  - Some tasks are simple, but require lots of human input (e.g. coding, labelling, etc.)

## Crowdsourcing - Models in place



## Make Money by working on HITs

HITs - *Human Intelligence Tasks* - are individual tasks that you work on. [Find HITs now.](#)

**As a Mechanical Turk Worker you:**

- Can work from home
- Choose your own work hours
- Get paid for doing good work



or [learn more about being a Worker](#)

## Get Results from Mechanical Turk Workers

Ask workers to complete HITs - *Human Intelligence Tasks* - and get results using Mechanical Turk. [Get Started.](#)

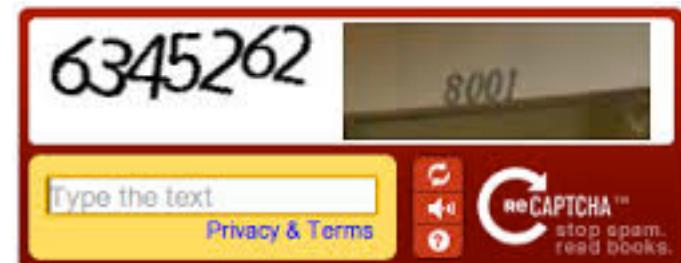
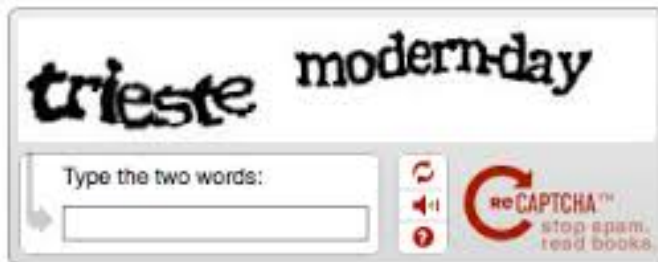
**As a Mechanical Turk Requester you:**

- Have access to a global, on-demand, 24 x 7 workforce
- Get thousands of HITs completed in minutes
- Pay only when you're satisfied with the results





- Digitizing words in ancient books used to be a headache (OCR doesn't always work)
- 10 seconds by millions of people everyday
- Solve the problem of identifying BOTs simultaneously
- 20 years' of New York Time digitized in a couple of months



# Crowdsourcing in Science

- Players are required to turn, twist, bend, and move around pieces of proteins in 3-D, to create the most stable folding shape possible.
- Ranked by the scores calculated from the stability of their protein designs.

