Sleep Restriction: Key Terms

TST = total sleep time
TIB = time in bed
SOL = sleep onset latency
WASO = wake after sleep onset
NUMA = number of awakenings

SE = sleep efficiency

$$\frac{TST}{TIB} \times 100 = SE\%$$

Sleep Restriction: Sleep Efficiency

Patient #1
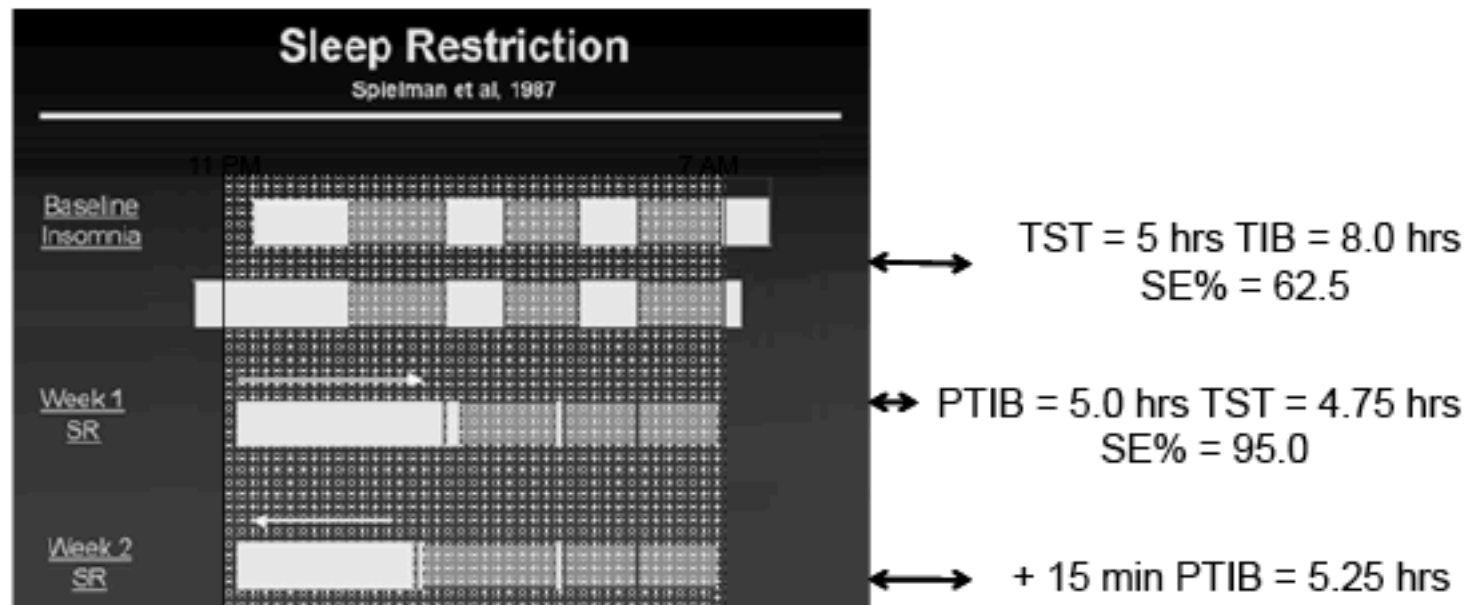> Bedtime is 12 AM, SOL immediate, 0 NUMAs, WT 8 AM

$$\frac{\text{TST (8 hours or 480 minutes)}}{\text{TIB (8 hours or 480 minutes)}} \times 100 = 100\% \text{ SE}$$

Patient #2
> Bedtime is 12 AM, SOL 1 hour, 2 NUMAs,
> 60 total WASO, WT 8 AM

$$\frac{\text{TST (6 hours or 360 minutes)}}{\text{TIB (8 hours or 480 minutes)}} \times 100 = 75\% \text{ SE}$$

Sleep Restriction

Sleep Restriction
Spielman et al, 1987

11 PM — 7 AM

Baseline Insomnia → TST = 5 hrs TIB = 8.0 hrs SE% = 62.5

Week 1 SR → PTIB = 5.0 hrs TST = 4.75 hrs SE% = 95.0

Week 2 SR → + 15 min PTIB = 5.25 hrs

PTIB = prescribed time in bed; SR = sleep restriction.
Spielman AJ, et al. *Sleep*. 1987;10(1):45-56.

Sleep Restriction and Titration

1. Use average TST over previous 2 weeks on sleep diary to restrict hours in bed = PTIB

2. Never restrict to less than 5 hours (6.5 hours in bipolar disorder)

3. Keep prescribed bed and wake times the same every single day

4. Review ways to stay awake until prescribed bedtime

5. Review ways to get up on time every day

6. Titrate sleep times based on sleep diary data using < 85%, 85% to 90%, > 90%

Perlis ML, et al. *Cognitive Behavioral Treatment of Insomnia*. New York, NY: Springer; 2005. Spielman AJ, et al. *Sleep*. 1987;10(1):45-56.