

APPENDIX - Slides from Dr. Judy Owens

Sleep in School-Aged Children

- Total sleep time: 10-12 hours
- Low level of daytime sleepiness
 - Racial/ethnic differences napping
- Circadian preference (chronotype): owl vs lark*
- Less parental awareness of sleep issues
- School, activities, electronic media, later bedtimes, earlier rise times, irregular sleep/wake schedules
- However, as opposed to adolescents, they are biologically, environmentally and socially more amenable to manipulation of bedtimes (ie, to move sleep onset earlier)if required

*But most school-aged (pre-pubertal) children have a “morningness preference” preference



Elementary School Start Times: The “Flip”

- Impact of School Start Time Changes:
- HS students delayed from 7:30am to 8:15am
- Students in grades 3-5 advanced from a start time of 8:20am to 7:45am
- HS students got 35 minutes more sleep
- 3rd graders also got more sleep (+24 minutes) after the change
- Sleep duration changes in 4-5th graders negligible
- No differences in behavior measures post-change

Grade	SST 1 BT/WT (SD HH:MM)	SST 2 BT/WT (SD HH:MM)	Sleep Duration Difference (Min)
3	8:37p/6:49a (10:11)	8:22p/6:57a (10:35)	+24*
4	8:52p/6:56a (10:03)	8:22p/6:22a (9:59)	-4
5	9:10p/6:59a (9:49)	8:43p/6:23a (9:40)	-9
10	(7:42)	(8:17)	+35**

Appleman et al. School start time changes and sleep patterns in elementary school students. Sleep Health, 1(2) (2015), 109-114.

*Largely accounted for by earlier bedtimes

**Completely accounted for by later rise times; 0 min difference bedtimes