Sleep during days with work stress compared to weekend sleep

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Conclusion
The weekend sleep is longer and contains more SWS even in the first part of the sleep. This could be a result of lower stress in the evening and a rebound effect of accumulated sleep deprivation during the week. Sleepiness during the day is not affected by the longer sleep.

Introduction
Stress is assumed to impair sleep but very few studies of naturally occurring variation in stress and polysomnography (PSG) have been carried out. The purpose of the present study was to compare sleep during a stressful workweek with sleep during the weekend.

Methods
Sleep was recorded at home in 28 teachers during one high stress and one low stress condition (and a habituation night). Probable upcoming stress levels were estimated through weekly ratings on a web questionnaire. 17 of them also completed a PSG recording of a weekend sleep (a workday followed by a day off). Participants also kept sleep diaries and wore actigraphs.

Results
There were no differences in bedtime but the weekend sleep was longer (376±14 for the workday and 447±19 for the weekend, p<0.05) contained more stage transitions (p<0.001) and SWS (p<0.01) as well as more arousals (p<0.001) and stage transitions (p<0.001).

Discussion
The increase in SWS could be a rebound effect of sleep deprivation during the week, however this is not likely to be the whole explanation since sleep latency or sleepiness levels in the evening did not differ. The increase in stage 5 sleep is also contradictory to common findings in recovery sleep. It seems likely that part of the increase in SWS could be a result of lower stress and less preoccupation with work in the morning interfering with sleep. The higher amount of arousals found in the weekend sleep could be connected to the increase in SWS due to the higher rate of stage transitions between deeper and shallow sleep needed for the brain. The increase in arousals could in turn result in more stage 1 sleep since arousals are most commonly followed by stage 1.

Even though sleep was longer and rated as more refreshing in the morning sleepiness levels were not significantly lower during the day as expected. Arousal levels however were higher during the workday which could cause sleepiness to be suppressed.

Means, standard error of the means and p-value for PSG-variables during workday and weekend sleep. *p<0.05, **p<0.01, ***p<0.001

Arousal levels rated every second hour during the day was significantly lower during the weekend compared to the workday (p<0.01). There were no differences in bedtime but the weekend sleep was longer (376±14 for the workday and 447±19 for the weekend, p<0.05) contained more stage transitions (p<0.001) and SWS (p<0.01) as well as more arousals (p<0.001) and stage transitions (p<0.001).

Means, standard error of the means and F-value for sleep diary ratings during workday and weekend sleep.

*p<0.05, **p<0.01, ***p<0.001