



# Thank God it's Friday!

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## Conclusion

Weekend sleep clearly differed from weekday sleep, resulting in both increased N3 and decreased sleep continuity. It also shows an unexpected increase in N1. It is suggested that the N3 increase may have been related to a more relaxed state before a day off, while the N1 increase may be an artifact of sleep spindle suppression through the increase of N3, thus reducing N2 and enhancing N1.

## Introduction

Stress is assumed to impair sleep but very few studies of naturally occurring variation in stress and polysomnography (PSG) have been carried out. Weekend sleep is important to reverse the sleep loss accumulated during the work week. This study compared sleep on the night between Friday and Saturday with sleep prior to a workday.

## Methods

Longitudinal within-subject design .17 teachers underwent a polysomnography (PSG) recording, in their own homes on one weekday night during the workweek and on a workday (Friday) followed by a day off. Sleep diaries, subjective ratings of sleep quality, sleepiness and stress, and actigraphs were also used.

## Results

Bedtimes and time of rising were delayed with approximately 30 minutes in the evening and 95 minutes in the morning. TST was significantly higher; the participants slept about 45 minutes longer during the weekend. There were no differences in bedtimes or TST the night before.

Weekend sleep showed lower sleep efficiency, more awakenings and stage transitions per hour. The sleep architecture also differed with the weekend sleep containing more N1 and N3. The weekend sleep also contained less sleep spindles both in stage 2 and per hour than the weekday sleep.

After truncation of the morning hours to the shortest common sleep duration (5h) the decrease of sleep spindles and the increase in SWS and stage 1 remained significant, with the addition of a decrease in REM and stage 2 sleep. Stage transitions were higher during the weekend but the increase in awakenings/hour was not significant.

	Weekday	Weekend	t
TST (min)	403±14	447±19	3.30**
Sleep efficiency	92.4±1.3	90.3±1.1	2.81*
Awakenings	3.9±.3	5.3±.5	2.78*
N1 (min)	16.7±3.4	66.4±8.9	5.93***
N2 (min)	253.6±8.2	232.6±18.5	1.43
N3 (min)	26.9±5.0	45.0±5.7	4.23**
Stage transitions	15.0±0.8	25.7±1.7	6.15***
Spindles/hour	70.7±17.9	51.4±15.4	2.76*
Spindles S2/hour	103.1±24.1	80.7±22.5	2.34*

*Means±se and t-value for PSG-variables during workday and weekend sleep. \*p<0.05, \*\*p<0.01, \*\*\*p<0.001*

The N3 increase was significantly correlated to N1 and negatively correlated to the change in N2. The increase in N1 was negatively correlated to the change in N2 sleep.

	∂s1	∂s2	∂s3
∂s1		-0.70**	.85**
∂s2			-.66**
∂s3			

*Pearson correlation r/values for changes in PSG/variables between workday and weekend sleep. \*p<0.05, \*\*p<0.01, \*\*\*p<0.001*

Subjective ratings showed that weekend sleep was associated with less awakening problems and lower arousal during the weekend.

## Discussion

Weekend sleep showed increased N3 and N1, and sleep duration was increased with 45 minutes. The Friday night increase in N3 in the present study may be due to a relaxation before a day off, evidenced in the reduced ratings of arousal during that day. It also shows an unexpected increase in N1 that may be related to the decrease in sleep spindles. Sleep spindles presumably help maintain sleep and should, therefore, not be needed in a situation of increased sleep pressure.

One consequence of the reduction of the number of sleep spindles should be that fewer epochs of sleep would be scored as N2, but rather as N1. Possibly also the increase in stage transitions may be related to the increased minutes of N1.

## CONTACT