computed as average delta power (0.4-4.4Hz) in the NREM sleep EEG for each of four EEG derivations (Fz, C3, C4, Oz referenced against A1/A2), was assessed for each night as a marker of sleep homeostasis. SWA data were analyzed with mixed-effects ANOVA of night type (baseline or recovery) by block (1 through 3).
Results: As expected, there was a significant increase of SWA during recovery sleep after sleep deprivation, compared to baseline sleep, at all four EEG derivations ($F > 11.4$, $P < 0.005$). There was no main effect of block ($F < 2.1$, $P > 0.14$). For the C3, C4 and Oz derivations, there was no significant interaction either ($F < 0.69$, $P > 0.51$). For the frontal derivation (Fz), there was a trend for an interaction ($F = 2.8$, $P = 0.078$), with SWA for the recovery sleep periods marginally declining over blocks.
Conclusion: Relative to baseline, SWA was significantly increased during recovery sleep periods following 36h total sleep deprivation. This is consistent with SWA being a marker of sleep homeostasis. Across repeated blocks of baseline sleep, total sleep deprivation, and recovery sleep, there was no build-up of SWA in either the baseline sleep periods or the recovery sleep periods, suggesting that one night of recovery sleep at 12h TIB sufficed to dissipate the sleep homeostatic pressure accrued during each of the 36h total sleep deprivation periods. Whether or not one night of recovery sleep was also enough to restore waking neurobehavioral performance to baseline levels remains to be investigated.
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0302

14 MONTHS OF DAILY SLEEP AND DAYTIME QUESTIONNAIRES IN A SINGLE INDIVIDUAL: FEELING RESTED UPON AWAKENING IS ASSOCIATED TO LONGER TOTAL SLEEP TIME AND BETTER QUALITY OF LIFE

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Introduction: Better health, mood and cognitive functions have been associated with good sleep in a number of studies. This study aimed at looking at the associations of a rested feeling upon final awakening with sleep quantity and with quality of life in a single individual over 14 months.
Methods: One healthy male (29y) completed daily sleep and daytime questionnaires over 440 days. These included measures of rested feeling upon awakening on a 0 to 10 scale, subjective total sleep time and quality of life measures (feelings of passion, health, love, success and pleasure throughout the day) each on a 0 to 10 scale. All quality of life measures were grouped, with a maximum score of 50 for this variable. Questionnaires were fully completed for a total 375 days for the rested feeling upon awakening score and subjective total sleep time and for a total of 395 days for the rested feeling upon awakening score and all quality of life measures. Correlations were performed between rested feeling upon awakening and 1) total subjective sleep time 2) quality of life measures of the following day.
Results: Results show a significant positive correlation between feeling rested upon awakening and subjective total sleep time ($r = 0{,}51$, $P < 0{,}001$) and also between feeling rested upon awakening and subjective quality of life measures ($r = 0{,}29$, $P < 0{,}001$).
Conclusion: These results suggest that a feeling of rest upon final awakening is associated with longer subjective total sleep time and a subjective sense of better quality of life throughout the following day. Further analysis of the 440 days of daily sleep and daytime questionnaires and associated 404 nights of sleep recordings in this single subject is needed to better understand links between sleep quality/quantity and quality of life that could be applicable to other individuals.

0303

404 NIGHTS OF SLEEP RECORDINGS ON A SINGLE SUBJECT: THE MOST RESTFUL NIGHTS CONTAIN MORE TOTAL SLEEP TIME, N2 LIGHT SLEEP, REM SLEEP AND WAKEFULNESS AFTER SLEEP ONSET (WASO)

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Introduction: Many studies support that sleep quality is linked to some aspects of quality of life including alertness, mood and cognitive performances. This longitudinal study aimed at verifying these associations, looking first at sleep architecture associated to restfulness upon awakening in a single individual.
Methods: Sleep recordings and daily questionnaires were performed on a healthy male (29y) for 404 nights over a 14 months period. Visual scoring using the AASM 2007 criteria was accomplished for the first 120 nights at the extremes of a rested feeling upon final awakening scale (score 0 to 10). Sixty one nights had a score of 0 to 5 and 59 nights had a score of 8 to 10. Correlations were performed between restfulness upon final awakening scores and 1) total sleep time, 2) sleep stages (N1, N2, N3, REM), 3) wakefulness after sleep onset (WASO), and 4) sleep efficiency.
Results: Scores of feeling rested upon final awakening disclose a significant positive correlation with total sleep time ($r = 0{,}62$, $P < 0{,}001$), N2 time ($r = 0{,}51$, $P < 0{,}001$), REM time ($r = 0{,}53$, $P < 0{,}001$), REM percentage ($r = 0{,}23$, $P < 0{,}05$) and WASO time ($r = 0{,}22$, $P < 0{,}05$).
Conclusion: The present results suggest that longer sleep, increased N2, REM sleep and WASO are associated with a more rested feeling upon final awakening. The results do not support the notion that good sleep is a sleep with minimal WASO. Aiming at long sleep time with some spontaneous awakenings could probably improve rested feeling, daytime performance and quality of life.

0304

SLEEP EXTENSION AND ATHLETIC PERFORMANCE IN COLLEGIATE FOOTBALL

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Introduction: Traditional athletic training regimens typically focus on multiple aspects of physical training, but few prioritize adequate sleep as an important component. This ongoing study of varsity sports at Stanford University continues to investigate the effects of sleep extension over a prolonged period of time on specific measures of athletic performance.
Methods: Seven healthy students (age 18-22) in varying positions on the Stanford football team maintained their habitual sleep/wake schedule for a two week baseline followed by seven to eight weeks of sleep extension during their regular season. Subjects obtained as much sleep as possible during the sleep extension period aiming for a minimum of ten hours of sleep each night. Indicators of athletic performance were conducted after every regular practice including the 20-yard shuttle and 40-yard dash drills as used at the annual National Football League Combine. Profile of Mood States (POMS) was administered once a week to monitor changes in mood and the Epworth Sleepiness Scale examined levels of daytime sleepiness. Subjects completed daily sleep journals and actigraphy monitored daily sleep/wake activity.
Results: Subjects executed faster sprinting combine drills including a significant decrease in the 20-yard shuttle (4.71 seconds at baseline vs. 4.61 seconds at end sleep extension, $P < 0.05$) and significant decrease in the 40-yard dash (4.99 seconds vs. 4.89 seconds, $P < 0.05$). POMS vigor scores significantly improved (12.86 vs. 19.14, $P < 0.05$) and POMS

fatigue scores significantly decreased (11.52 vs. 1.57, P < 0.05). Subjects reported improved ratings during practice and Epworth Sleepiness scores significantly decreased (9.43 vs. 3.14, P < 0.05).
Conclusion: Improvements in football performance as assessed by the NFL combine drills suggest that sleep extension may be beneficial to athletic performance.

0305

LONG SLEEP DURATION IS ASSOCIATED WITH THE METABOLIC SYNDROME: THE GUANGZHOU BIOBANK COHORT STUDY

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Introduction: Sleep duration and sleep quality have previously been linked to some components of the metabolic syndrome including obesity, development of type 2 diabetes and hypertension. Prevalence of the metabolic syndrome is rapidly increasing. A limited number of studies have directly examined the relationship between the metabolic syndrome and sleep duration and produced conflicting results. We therefore examined the possible relationship between sleep duration and the metabolic syndrome in a large cohort of elderly Chinese.
Methods: Design: Cross-sectional analysis of baseline data from the Guangzhou Biobank Cohort Study. Setting: Community-based elderly association in Guangzhou, China. Participants: 29,310 Chinese men and women aged 50 years or older. Measurements: Self-reported total sleep duration (including daytime naps) was obtained by questionnaire and the metabolic syndrome was identified according to the American Heart Association and National Heart Lung and Blood Institute's criteria.
Results: Participants reporting long (≥ 8 hours) and short (< 6 hours) sleep duration were 15% and 14% more likely to have the metabolic syndrome, respectively. The relationship remained unchanged in long sleepers after full adjustment for demographics, lifestyle and sleep habits, use of hypnotics, diagnosed mental illness, and metabolic markers (odds ratio for metabolic syndrome 1.15 [95% CI 1.07-1.23]) but diminished in short sleepers (odds ratio for metabolic syndrome 0.98 [95% CI 0.90-1.08]). Removal of those with potential ill health slightly attenuated the observed association (odds ratio for metabolic syndrome 1.13 [95% CI 1.04-1.22] in long sleepers).
Conclusion: Long sleep duration is associated with elevated prevalence of the metabolic syndrome in this older Chinese sample. Due to the cross sectional nature of this study, causality cannot be determined. Confirmation by longitudinal studies is needed.