countries have the largest publication record regarding sleep-related meta-analysis.  

Results: A total of 130 over the 200 articles from the initial “sleep” search were directly related to Sleep Medicine, resulting in a correction factor of 0.65. After analyzing the data, it was observed that the amount of meta-analyses being published in Sleep Medicine has been growing, reaching 163 indexed meta-analyses in 2007; against a single publication in 1990. The percentage of meta-analysis in sleep medicine (0.06%) is lower than in the average of the areas that compose it (0.14%). The number of meta-analysis published in all areas shows a mean growth rate per quinquennium of 20.86% between 1991 and 2015, ranging from 8 to 31%. While the growth rate in the number of meta-analysis in sleep medicine is 15.81%, ranging from -10 to 38%. Regarding the number of meta-analysis published by country, USA, China and England are the most productive countries in most of the meta-analysis publication rankings. 

Conclusion: Meta-analysis are an important way to synthesize data in medicine, leading to the higher possible level of medical evidence and usually leading to robust and reliable conclusions. Despite reasonably common in other medical fields, meta-analysis in sleep medicine are rather uncommon. Sleep-related meta-analysis is an area with broad potential for growth, as its publication record are still smaller and grows less than in other areas. Sleep researchers should be encouraged to perform and publish meta-analyses on their field of research whenever there is sufficient data. 

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Narcolepsy  
DYSREGULATION OF BETA-AMYLOID METABOLISM IN NARCOLEPSY  
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Introduction: Narcolepsy is characterized by a lack of hypocretin due to the loss of hypothalamic orexinergic neurons. In recent years, several studies showed the relationships between the orexinergic system and the metabolism of beta-amyloid protein which is also modulated by sleep. It is also known that the metabolism of beta amyloid protein can be influenced by inflammatory factors.

Materials and methods: In order to test the autoimmune/inflammatory hypothesis, we analyzed the cerebrospinal fluid (CSF) levels of beta-amyloid 1-42, t-tau and p-tau proteins in a sample of 39 narcoleptic patients (mean age 36.5 ± 12.9), compared to 17 healthy controls (mean age 33.3 ± 8.4). In particular, based on the ICSD-3 diagnostic criteria, 24 patients (mean age 35.6 ± 12.3) were suffering from type 1 narcolepsy (NT1) and 15 patients (mean age 37.8 ± 14) from type 2 narcolepsy (NT2).

Results: The CSF levels of beta-amyloid 1–42 were significantly lower in both patients with narcolepsy compared to controls (985 ± 283 vs 1039 ± 105), and in NT1 patients compared to NT2 patients (575 ± 252 vs 860 ± 274), while the p-tau values were higher in patients with NT2 with respect to NT2 (35.9 ± 10.9 vs 25.4 ± 8.4).

Conclusions: These data suggest the presence of a dysfunction of the beta amyloid protein metabolism in patients affected by narcolepsy, which seems further support the hypothesis of the involvement of inflammatory pathogenetic mechanisms in narcolepsy. Furthermore, we hypothesize that the differences in CSF concentration of neurodegeneration markers found in the two patient subgroups may underlie different pathogenic mechanisms present in NT1 compared to NT1.

Aging and Developmental Issues  
ASSOCIATIONS BETWEEN HABITUAL SLEEP DURATION AND CIRCADIAN PREFERENCE WITH SCHOOL ATTENDANCE AMONG MIDDLE SCHOOL STUDENTS  
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Introduction: School attendance, particularly chronic absenteeism, remains a persistent, challenging, and complex problem for schools. In the last few years, school start times have become a more prominent focus of education policy and practice. Prior studies have demonstrated that delayed school start times for adolescents result in increased sleep duration, as well as improved academic performance, reduced daytime sleepiness, depressive symptoms, tardiness, and attendance. This study was conducted to determine whether sleep duration and circadian preference are also cross-sectionally associated with school attendance among middle school students at baseline, prior to a scheduled multi-year plan for delaying school start times in the Madison (Wisconsin) Metropolitan School District (MMSD).

Materials and methods: All MMSD middle school students (grades 6–8) were invited to complete an online survey regarding sleep habits, symptoms, and attendance in the spring of 2019. Circadian preference was determined using the self-morningness/eveningness (Self-ME) questionnaire. Habitual sleep duration was estimated as the weighted self-reported sleep time on school days and non-school days. Linear mixed effect models were utilized with attendance rate as the primary outcome variable, with age, sex, race, English language learner status, homelessness, parental educational level, free-and-reduced lunch status, circadian preference, and habitual sleep duration as covariates. School was accounted for as a source of nonindependence. To minimize outlier effects on models, students with reported sleep duration < 4 or >12 hours were excluded.

Results: Data from 2,715 students (mean age = 11.9 ± 0.9 years; 51.8% female) were included in the analysis. In the fully adjusted model, weighted sleep duration (β = 0.55, SE = 0.16, p = 0.001) and circadian preference (β = −0.44 SE = 0.15, p = 0.02) were each significantly associated with attendance rate, such that reduced sleep duration and a delayed circadian preference were related to decreased attendance.

Conclusions: These results suggest that sleep duration and circadian preference are factors that are associated with school attendance in early adolescence. These findings strengthen calls for delayed school start times that account for circadian preference and target increasing sleep duration among students. Future research that examines within-subject effects of delaying school start times, as well as qualitative aspects of such interventions are warranted.

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Chronobiology/Circadian Disorders  
STUDY OF THE EFFECTS OF A 5 HOUR AND 8 HOUR CIRCADIAN PHASE ADVANCE AS A MODEL OF JET LAG DISORDER  

Introduction: Jet Lag Disorder occurs when an individual’s circadian rhythms become misaligned due to rapid change in time zone that occurs after rapid transmeridian travel. By simulating such a time zone change in a lab setting, the effects of phase shifting can be studied in the absence of confounders that occur during travel including variable sleep deprivation and light exposure.

Materials and methods: This observational study investigated the effects of a 5 hour and 8 hour sleep phase advance in 322 patients (5 hour: n = 86; 8 hour: n = 236). Patients went to bed 5 or 8 hours earlier than their usual bedtime and attempted to sleep for 8 hours, after a protocol of sleep hygiene. Overnight polysomnography was performed.

Results: Sleep efficiency (SE) was evaluated for each third of the night. A significant difference was demonstrated between the 5 hour and 8 hour phase advance in SE during each of the three thirds of the night: first third of the night SE (5 hour: 45.6%; 8 hour: 54.0%, p < 0.02), second third of the night SE (5 hour: 53.4%; 8 hour: 24.2%; p < 0.0001), and third third of the night SE (5 hour: 76.8%; 8 hour: 33.6%; p < 0.0001).