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Introduction: The circadian system, a critical biological mechanism governing the sleep-wake cycle, already starts developing before birth. While distinct behavioral states have been described during fetal stage, our understanding of diurnal patterns of such behavior and their transition into infant sleep-wake patterns remains limited. Leveraging wearable technology, this study offers comprehensive insights into the earliest manifestations of sleep-wake behavior and its determinants, spanning from the last trimester of pregnancy through to the first 6 months after birth. Beyond maternal rhythms, we expected that fetal activity patterns in the womb predict infant sleep behavior after birth.

Method: We collected motion and temperature data from 32 pregnant women in their third trimester continuously over five consecutive days. Additionally, we collected follow-up postnatal data at three timepoints (i.e., during the first weeks after birth by means of a sleep diary, and at 3 as well as 6 months of age by means of the Brief Infant Sleep Questionnaire) to monitor the evolution of individual sleep patterns.

Results: With a Random Forest algorithm, we identified the fetal preference towards nighttime rest as a key predictor of a postnatal preference for nighttime sleep accounting for 29% to 31% of the importance in the models. This suggests that fetuses with a preference for nighttime rest tend to retain this pattern post-birth. Additionally, the regularity of maternal sleep during pregnancy significantly influenced infant sleep timing preference after birth accounting for 18% to 20% of the importance, with consistent maternal sleep patterns (i.e., low day-to-day variability) during the last trimester of pregnancy predicting a stronger nighttime sleep preference in infants.

Conclusion: Our findings suggest transgenerational effects, including a strong impact of intrauterine life and maternal behaviors during pregnancy, on the development of sleep patterns in infants. Maternal sleep regularity emerges as a modifiable factor, offering a target for interventions aimed at improving infant sleep quality. These findings broaden our understanding of the early development of biological rhythms and their long-term health implications (e.g., for regulatory difficulties and circadian disorders), emphasizing the importance of early life conditions and maternal health on sleep development.

Conflict of Interest: No.

P1076
Poster Session-Basic Human-Day 3 (Poster)

Electrophysiology of vocalizations in Sleep Talking: Predictive marker or abnormal expression of a physiological mechanism?

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Introduction: The literature about NREM parasomnias reports an increase in high and low EEG frequency before the behavioural episodes that occurred during slow-wave sleep. This EEG pattern could be an electrophysiological predictor of episode onset. However, recent evidence has shown that NREM awakenings, regardless of behavioural manifestations, are associated with a slow-wave synchronization correlated with rapid EEG activity predominantly in frontocentral areas. Sleep Talking (ST) is a parasomnia characterized by linguistic activations during sleep and other nonverbal sleep utterances (moaning, crying and laughter. In its isolated form, it has been observed that vocal manifestations (verbal and nonverbal) occur most frequently in stage 2 of NREM sleep. Therefore, the present study analysed the EEG patterns preceding vocalizations from N2 aiming to identify the electrophysiological processes permissive to such activations in a stage of sleep that is not characterized by slow-wave activity.

Method: We recorded 12 sleep talkers (F = 11, M = 1; 18–35 years) via 64-channel video-polysomnographic and performed a multiple awakenings protocol. We selected epochs of 4 s immediately prior to 32 vocalizations produced in N2 and 32 epochs extracted during a comparable continuous sleep period. Then, the Student's t-tests for paired samples were performed for each scalp location.

Results: The comparisons showed a significant increase in the beta band in fronto-central areas preceding the onset of vocal activations compared with continuous sleep. Moreover, a parallel but not significant increase in the delta activity was observed in the same areas.

Conclusion: The results are partially consistent with the literature on parasomnias. Rapid EEG activity, characterized the behavioural episodes onset in association with slow wave activity (SWA), has been repeatedly reported. In contrast to previous studies, we analysed the EEG before ST episodes onset during N2, which may explain the lack of differences concerning the delta activity. Although the increase of SWA was not significant, it seems that the arousal observed before the vocal productions, associated with a slower EEG background, is permissive to ST manifestations and could represent the abnormal expression of a physiological mechanism across different parasomnias and sleep stages.

Conflict of Interest: No.

P1078
Poster Session-Basic Animal-Day 3 (Poster)

The effect of meditation training on sleep: A systematic review of polysomnographic studies

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