for the entire cohort and for the CCC subgroup, respectively, as determined by an independent statistician. Scoring followed the American Academy of Sleep Medicine 2014 acceptable guidelines. Secondary endpoints included the oxygen desaturation index scored at 4% desaturation (ODI4). Statistical significance was assessed at p<0.05 using paired t-tests.

Results: Forty-two (31/11-Males/Females, 24/18-non-CCC/CCC) of the 45 enrolled participants received an implant at 8 research sites in Australia. Results from the full analysis cohort, defined as all implanted participants, are presented.

No device-related SAEs up to 6 months post-implant were reported by the site investigators. The CEC identified two device-related SAEs (device migration, infection).

Mean AHI4 values decreased significantly from 27.5±11.9, 28.9±11.9 and 26.5±12.1 to 16.9±16.0, 18.9±17.6 and 15.5±15.0 events/hr at 6 months post-implant in the entire cohort, CCC and non-CCC cohorts, respectively, with mean improvements of 10.7±11.6, 10.1±12.3 and 11.0±11.3 events/hr (p≤0.001). The ODI4 also decreased significantly from 21.9±-12.1, 23.9±-12.5 and 20.5±11.9 events/hr at baseline to 14.1±13.6, 16.2±14.9 and 12.6±12.7 events/hr at 6 months post-implant in the entire cohort, CCC and non-CCC cohorts, respectively, with mean improvements of 7.9±10.6, 7.7±12.1 and 7.9±9.5 events/hr (p≤0.01).

Conclusions: Statistically significant reductions in AHI4 and ODI4 were observed in the full cohort of participants. While not designed to compare sub-cohorts, the study showed similar improvements in AHI4 and ODI4 for both CCC and non-CCC participants.

CARDIORESPIRATORY FITNESS IS ASSOCIATED WITH PHASE ADVANCED CIRCADIAN RHYTHMS IN HEALTHY ADOLESCENTS

A.B. Neikrug [1], I.Y. Chen [1], S. Radom-Aizik [2], A. Stehli [2], K.K. Lui [1], M.G. Chappel-Farley [1], A. Dave [1], A.N. Lim [3], B.A. Mander [1], R.M. Benca [1]. [1] *University of California Irvine, Psychiatry and Human Behavior, Irvine, United States;* [2] *University of California Irvine, Pediatrics, Irvine, United States;* [3] *University of California Irvine, School of Medicine, Irvine, United States*

Introduction: Adolescence is often accompanied by delayed sleep/wake patterns and circadian activity rhythms (CAR). Regular participation in exercise facilitates entrainment of circadian rhythms and has positive impacts on sleep and overall health. However, the relationship between cardiorespiratory fitness (CRF), an important marker of health, and circadian rhythms has not been explored. The present study aimed to examine the associations between CRF as measured by peak VO_2 with behavioral and endogenous circadian rhythm variables in healthy adolescents.

Materials and Methods: Eighteen adolescents (10 females) aged 11-17 years (M_{age}= 14.6±2.3 years) participated during summer vacation. The study involved two laboratory visits bracketing an ambulatory assessment. Peak VO_2 was assessed during visit 1 following standardized cardiopulmonary exercise testing (CPET) protocol by using a ramp-type progressive cycle ergometry with a breath-by-breath measurement of gas exchange. Sleep/wake patterns and CAR were estimated with 7-14 days of actigraphy between the two laboratory visits. CAR characteristics, an indication of behavioral circadian rhythmicity, were parameterized using cosinor (i.e., acrophase, amplitude and mesor) and a graphical approach. Graphical approach yields UP time (time of activity rise in the morning), DOWN time (time of activity decrease in the evening), and last activity peak (LAP) time (time of the last peak of daytime activity prior to decrease of activity in the evening time). Salivary melatonin was sampled hourly during visit 2 at a sleep laboratory to determine dim light melatonin onset (DLMO) phase, a marker of endogenous circadian phase. Bivariate correlations adjusting for sex, pubertal status, and amount of engagement in physical activity were performed to evaluate the associations between CRF with rhythm variables. Mixed models using longitudinal actigraphic activity data that were aggregated hour-by-hour over a single 24-hour period were conducted to examine the association between CRF and actigraphy-derived circadian activity patterns.

Results: Greater peak VO_2 was significantly associated with earlier mid-sleep time (r=-0.698, p=0.004) and circadian phase parameters, including acrophase (r=-0.631, p=0.012), UP time (r=-0.603, p=0.017), DOWN time (r=-0.548, p=0.035), and LAP time (r=-0.531, p=0.042). Peak VO_2 trended towards an association with earlier DLMO phase (r=-0.533, p=0.060), exhibiting a large effect size. All these associations were independent of sex, pubertal status, and amount of engagement in physical activity. We also observed a significant interaction between peak VO_2 and hour-by-hour circadian activity patterns [F(23, 368)=3.16, p<0.000], with strongest interactions noted around morning waking hours (6:00 − 10:00).

Conclusions: These data amongst healthy adolescents suggests that better CRF is associated with favorable behavioral manifestations of circadian rhythms, i.e., earlier sleep/wake patterns and a more phase advanced CAR. Future studies are needed to investigate the longitudinal effects of the interaction between CRF and advanced rhythms on health outcomes.

CHANGES IN SLEEP BEFORE AND DURING COVID-19 IN URBAN AMERICAN INDIAN/ ALASKA NATIVE ADOLESCENTS

W. Troxel [1], A. Palimaru [2], D. Klein [2], L. Dong [2], C. Johnson [3], D. Dickerson [4], R. Brown [2], E. D'Amico [2]. [1] *RAND Corporation, Social and Economic Wellbeing, Pittsburgh, United States;* [2] *RAND Corporation, Social and Economic Wellbeing, Santa Monica, United States;* [3] *Sacred Path Indigenous Wellness Center, Los Angeles, United States;* [4] *UCLA Semel Institute, Los Angeles, United States*

Introduction: COVID-19 has profoundly affected sleep, although little research has focused on high-risk populations for poor sleep health, including American Indian/ Alaska Native (AI/AN) adolescents.

Materials and Methods: This is the first longitudinal study to examine changes in sleep with surveys completed before the pandemic and during the early months of COVID-19 in a sample of urban AI/AN adolescents (N=118; mean age= 14 years at baseline; 63% female). We use a mixed-methods approach to explore how COVID-19 affected urban AI/AN adolescents' sleep, daily routines, and interactions with family and culture. Quantitative analysis examined whether pandemic related sleep changes were significant, and explored potential moderators of COVID-19's effect on sleep, including family and community cohesion and engagement in traditional practices.

Results: Findings demonstrate changes in sleep, including increases in sleep duration, delays in bedtimes and waketimes, and increases in sleep-wake disturbances (*p*'s <.001). Higher levels of family cohesion and higher levels of engagement in traditional practices moderated pandemic-related increases in weekday sleep duration. Qualitative analyses revealed changes in adolescents' sleep and daily behaviors, as well as strategies adolescents used to cope with pandemic-related disruptions in sleep and routines.

Conclusions: We found evidence for both positive and negative changes in sleep during COVID-19 stay-at-home orders, including simultaneous increases in sleep duration and sleep-wake disturbances. Results highlight the importance of considering multi-level influences on adolescent sleep, such as early school start times, family dynamics, and cultural factors. A multi-level approach may help guide prevention and intervention efforts to improve adolescent sleep health.

CHARACTERING AIRWAY COLLAPSE FROM PSG TRAINED ON SNORING SOUND

C.-W. Wu [1], R.-K. Cheng [1], J.Y.-J. Hsu [1], C.-J. Huang [2], S.Y.-C. Liu [3], Y.-C. Hsu [4,5], F.-S. Hsu [6,7,8]. [1] *National Taiwan University, Department of Computer Science and Information Engineering, Taipei City, Taiwan;* [2] *National Taiwan University, Joint Research Center for Artificial Intelligence Technology and All Vista Healthcare, Taipei City, Taiwan;* [3] *Stanford University School of Medicine, Division of Sleep Surgery, Department of Otolaryngology, Head and Neck Surgery, Stanford, United States;* [4] *National Taiwan University, Department of Biomedical Engineering, Taipei City, Taiwan;* [5] *Taipei Tzu Chi Hospital, Buddhist Tzu Chi Medical Foundation, Department of Otolaryngology, Head and Neck Surgery, Taipei City, Taiwan;* [6] *National Taiwan University, Graduate Institute of Biomedical Electronics*