communities to begin their projects. Community of practice development continues through interactive webinars and development of a web-based repository of training videos and discussion board posts. Evaluation data show high participant learning and satisfaction, with mean confidence scores improving on 6/8 metrics. Evaluation data also suggest several areas for improvement such as more time spent in teams for planning and additional opportunities for interaction within the cohort and with program instructors for problem-solving. DISCUSSION/SIGNIFICANCE: Effective training for team-based community-engaged research requires careful planning for team development and study implementation. Longitudinal training and support for the technical aspects of utilizing air sensors is also critical to team success. The RISE Communities program is actively recruiting for future training cohorts.

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Multimodal assessment of sleep in individuals with chronic post-concussive symptoms: A Pilot Study

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OBJECTIVES/GOALS: Weaimed to compare subjective and objective sleep in individuals with chronic post-concussive symptoms. We hypothesized an association between self-reported sleep quality and objective sleep parameters, which is different for concussed and control cohorts. METHODS/STUDY POPULATION: 28 individuals with chronic post-concussive symptoms and 13 age-matched controls (no concussion history) completed the ISI, PSQI, PROMIS Depression, Anxiety, Stress and Cognitive questionnaires at enrollment. Objective sleep parameters were obtained for a minimum of 7 days and up to 30 days with a validated sleep monitoring device placed under the subject's bed (Emfit). For each night, raw activity data per minute were analyzed to determinein-bed, sleep, wake, andout-of-bedtimes. These measures were used to calculate total sleep time (TST), sleep onset latency (SOL), and wake after sleep onset (WASO) for each night. RESULTS/ANTICIPATED RESULTS: Concussed individuals reported worse sleep with PSQI and ISI scores significantly higher than controls. They also showedsignificant associations between PSQI and Dep ression, ISI and Depression, and ISI and Anxiety scores. There was no difference between objective sleep parameters in the concussed and control cohorts (in-bed/sleep/wake/out-of-bed times, TST, SOL, and WASO). Instead, higher PSQI, ISI, Depression, Anxiety, and Stress scores (greater symptom burden) were all associated with later sleep times, where as higher Cognitive scores (greater cognitive function) were associated with earlier sleep times, regardless of g roup status. DISCUSSION/SIGNIFICANCE: Concussed individuals report worse subjective sleep but no differences to controls when objectively assessing sleep. Depression/anxiety, and not concussion status, determine objective sleep parameters. Psychiatric comorbidities should inform the treatment of post-concussive sleep disturbances.

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Aerodynamic Size Distribution of SARS-CoV-2 Aerosol Shedding

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OBJECTIVES/GOALS: We designed the Biocascade Exhaled Breath Sampler (BEBS) to characterize viral aerosol shedding among individuals with influenza and other respiratory virus infections. We first aimed to test the BEBS on volunteer COVID-19 cases and report the aerodynamic size distribution of exhaled breath aerosol particles carrying SARS-CoV-2 RNA. METHODS/STUDY POPULATION: From June 15 through December 15, 2022, we recruited 27 PCR-confirmed COVID-19 cases from a college campus and the surrounding community to provide 30-minute breath samples into a well-validated Gesundheit-II (G-II) exhaled breath aerosol sampler. Among these individuals, 17 provided an additional exhaled breath sample into the newly designed BEBS. We quantified samples for viral RNA using reverse transcription digital polymerase chain reaction (RT-dPCR) and determined the viral RNA copies collected within two aerosol size fractions (≤5 μm and >5 μm in diameter) from the G-II, and four aerosol size fractions (<1.15 μm, 1.15–3.2 μm, 3.3–8.2 μm, and >8.2 μm) from the BEBS. RESULTS/ANTICIPATED RESULTS: Individuals with a SARS-CoV-2 Omicron BA.4 or BA.5 infection shed virus in aerosols at an average rate of 7.5x103 RNA copies per 30-minute G-II sample, with 78% of the total RNA in aerosols ≤5 μm in diameter. Among the BEBS samples, 10% of the total viral RNA was detected in aerosols <1.15 μm, 43% in 1.15–3.2 μm, 37% in 3.3–8.2 μm, and 10% in the >8.2 μm size fraction. Based on viral RNA loads, our results indicate that exhaled aerosols ≤3.2 μm contribute the majority of SARS-CoV-2 inhalation exposure. DISCUSSION/SIGNIFICANCE: Our data provide additional evidence that respirable aerosols contribute to the spread of SARS-CoV-2. Thus, our data suggest that mitigation measures designed to reduce infectious aerosol inhalation, such as ventilation and the use of air cleaners and respirators, are needed to control the spread.

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Alexithymia impacts vulnerability for cognitive decline in healthy elders via frontal lobe connectivity during response inhibition, especially in women

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OBJECTIVES/GOALS: This project aimed to examine the impacts of biological sex and alexithymia on frontal lobe connectivity in executive functioning (EF)-related neural networks during successful inhibition as a means to index vulnerability for future cognitive decline. METHODS/STUDY POPULATION: Healthy, cognitively intact older adults (n=43, 33 female, Mage=79) completed the 20-item Toronto Alexithymia Scale (TAS-20) and the stop-signal task in this study. We used electroencephalography (EEG) source estimation to investigate EF-related frontal connectivity during successful inhibition in stop-signal task trials. Connectivity was measured in bilateral frontal ROIs relevant to inhibition using time series correlations over the N200 (186-350ms) and P300 (340-616ms) time windows, associated with the inhibitory

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https://doi.org/10.1017/cts.2024.308