across the study period, where 66.82% of counties had broadband present in 2017 versus 92.57% in 2020. A major jump occurred from 2018 to 2019, where 64.96% of counties had broadband present in 2018 compared to 91.09% in 2019. Broadband access also rose, where the average proportion of households with broadband was 69.43% in 2017 and 78.24% in 2020. The increase in both broadband presence and access from 2017 to 2020 was larger in rural counties compared to urban counties. Specifically, the increase in the probability of having broadband present from 2017 to 2020 was 30% higher in rural compared to urban counties (95% CI: 1.24, 1.38). The increase in the proportion of households with broadband was 1.21% higher from 2017 to 2020 in rural compared to urban counties (95% CI: 0.004, 0.021). DISCUSSION/SIGNIFICANCE OF IMPACT: While broadband presence and access both increased from 2017 to 2020, the observed increases were larger in rural compared to urban counties. Improvements in broadband access in the US are continuously needed to increase the use of telehealth and, subsequently, lessen rural/urban disparities in healthcare access and disease detection.

86
Defining return to sport in anterior cruciate ligament (ACL) injury recovery with mobile markerless motion capture: A cross-sectional analysis of factors associated with return to activity

Aidan Foley, Anisa Rayne Torres, Ryan Halvorson, Brian Feeley and Jeannie Bailey
University of California, San Francisco

OBJECTIVES/GOALS: Approximately 250,000 anterior cruciate ligament (ACL) tears occur annually in the USA. Symptoms generally improve after ACL reconstruction (ACLR), but 20% of athletes do not return to sport. It is not clear how biomechanical function and mental health impact return to activity, so the purpose of this study is to evaluate their effect on return to activity following ACLR. METHODS/STUDY POPULATION: Patients age 18 years and older who have undergone primary ACLR at a single institution who are one year out from their initial procedure will be recruited by email. Patients will be excluded if they had a concomitant or subsequent ligamentous knee injury in the follow-up period since their index procedure. Additionally, patients will be excluded if they do not have access to a mobile phone with video recording capability. The primary outcome will be joint angle kinematics and postural balance metrics derived from patient recorded mobile-phone videos while performing several provocative exercises (sit-to-stand, Star Excursion Balance test). Patients will also be given surveys assessing knee symptoms, psychological readiness for return to sport, mental health, athletic history, and current return to sport level. RESULTS/ANTICIPATED RESULTS: We predict that psychological readiness for return to sport following ACL injury and biomechanical postural stability will each be independently associated with return to sport timing following ACLR. Additionally, we anticipate that psychological readiness, as measured by higher ACL-Return to Sport Index scores, will be more strongly associated with return to sport compared to biomechanical movement quality (better gross postural control on skeletal modeling). In other words, higher psychological readiness for return to sport will have a stronger independent association with return to sport level compared to biomechanical movement quality measures. DISCUSSION/SIGNIFICANCE OF IMPACT: This study also aims to define return to sport in terms of biomechanics and psychological readiness in an athletically

heterogenous population. Additionally, we will test the feasibility of patient-led, remote, mobile, markerless motion capture for assessment of biomechanical function and distribution of patient-reported outcome measures.

89
Predictors of variability in Apple Watch step count data from a 3-year prospective cohort

Aleda Leis, Mingyan Yu and Michael Elliott
University of Michigan

OBJECTIVES/GOALS: Physical activity (PA) is a well-documented protective factor against many cardiovascular diseases. PA guidelines to reduce these risks and the impact of variability are unclear, and most studies only examine a 7-day activity window. This study aimed to examine factors related to variability in step counts in a 3-year study of adults aged ≥18 years. METHODS/STUDY POPULATION: Included were 6,525 participants from the Michigan Predictive Ability and Clinical Trajectories study, a prospective cohort of community-dwelling adults enrolled between 8/14/2018 and 12/19/2019 who received care at Michigan Medicine and were followed for 3 years. Data were collected from Apple Watches provided to participants via the HealthKit. This secondary analysis included those with ≥4 valid weeks of data (≥4 days with at least 8 hours of wear time). Season was defined as Spring (March 20–June 20), Summer (June 21–September 21), Fall (September 22–December 20), and Winter (December 21–March 19). GEE models against the outcome of variability, defined as weekly standard deviation of step counts, and the predictor of season were adjusted for age, sex, race/ethnicity, weekly average step count, diabetes, and body mass index. RESULTS/ANTICIPATED RESULTS: The average (standard deviation (SD) step counts by season were 7101 (3434) in Spring, 7263 (3354) in Summer, 6863 (3236) in Fall, and 6555 (3211) in Winter. Compared to winter, there was statistically significantly higher variability in all other seasons (p DISCUSSION/SIGNIFICANCE OF IMPACT: In this cohort of community-dwelling adults, we found significant differences in variability of physical activity by season, age, and BMI. Future work will examine how this variability impacts the risk of development of cardiovascular disease, incorporating the impact and recovery trajectories of COVID-19 and other acute respiratory infections.

90
The role of bitter taste receptors (T2Rs) in aspirin-exacerbated respiratory disease

Lancelot Herpin[1], Kohanski[2], Bosso[2], Adappa[2], Palmer[2] and Cohen[2,3,4]
[1]University of Pennsylvania School of Medicine; [2]Department of Otorhinolaryngology-Head and Neck Surgery, Division of Rhinology, University of Pennsylvania, Perelman School of Medicine, Philadelphia, Pennsylvania, USA; [3]Monell Chemical Senses Center, Philadelphia, Pennsylvania, USA and [4]Philadelphia Veterans Affairs Medical Center, Philadelphia, Pennsylvania, USA

OBJECTIVES/GOALS: Aim 1: Assess the correlation between Tuft cell T2R functionality and Th2 sinonasal inflammation, disease burden, and post-surgical outcomes in AERD patients. Aim 2: Determine if hyperfunctional Tuft cell T2Rs enhance denatonium-stimulated inflammatory responses in nasal epithelial air–liquid interface (ALI) cultures from AERD patients. METHODS/STUDY POPULATION: Aim 1: We will conduct a prospective cohort study