

≥65 y/o) linked to Medicare claims data was conducted. Four multimorbidity patterns were identified based on the list of 20 chronic conditions and included: ‘cardiovascular-metabolic only’, ‘cardiovascular-metabolic plus other physical conditions’, ‘cardiovascular-metabolic plus mental conditions’, and ‘no cardiovascular-metabolic disease’ patterns. Presence of PIM prescribing was identified using the 2015 American Geriatrics Society Beers Criteria, limited to the list of medications to avoid in older adults. Chi-square tests and logistic regressions were used to identify sex differences in prescribing PIMs across multimorbidity patterns: (1) for PIMs overall and (2) for each PIM drug class. Results indicate that on average women were prescribed PIMs more often than men (39.4% and 32.8%, respectively). Women with cardiovascular-metabolic plus other physical patterns (Adj.OR=1.25, 95% CI: 1.07-1.45) and cardiovascular-metabolic plus mental patterns (Adj.OR=1.25, 95% CI: 1.06-1.48) had higher odds of PIM compared to men, however, there were no sex differences in PIM prescribing in the cardiovascular-metabolic only patterns (Adj.OR=1.13, 95% CI: 0.79-1.62). There was variation by sex across different PIM drug classes. Our study emphasizes the need to further reduce PIM prescribing among older adults, and identifies target populations for potential interventions to improve medication prescribing practices.

#### THYME AND OREGANO TERPENOIDS ACTIVATE AUTOPHAGY AND PROTECT AGAINST HEPATIC STEATOSIS

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Caloric restriction has been shown to reduce chronic illness in aging and increase life expectancy in most living organisms including mammals. Autophagy, a ubiquitous catabolic pathway of cellular quality control, is a key mechanism mediating the benefits of caloric restriction. In addition, mutations in genes involved in autophagy have been associated with the early onset of age-related diseases such as neurodegeneration, highlighting autophagy as a potential therapeutic target. Here, we aimed to discover autophagy inducers from a library of edible molecules for potential use in food applications. To this end, we developed a novel in vivo high-content screening strategy using fluorescent reporter zebrafish that monitor autophagy flux in skeletal muscle. We identify the thyme and oregano constituent thymol as a novel potent autophagy inducer in zebrafish, human cells and mouse tissues. Mechanistically, thymol triggers an hormetic effect on mitochondria in synergism with a calcium-dependent autophagy response which, in turn, leads to mobilization of intracellular lipid stores. We tested the effects of chronic thymol supplementation in mice fed a high-fat diet and showed that thymol mobilizes fatty acids, reduces liver triglycerides and improves markers of liver damage. In sum, we validate the use of zebrafish screening as a discovery model for autophagy-based therapeutics and demonstrate that thymol is an autophagy inducer with potential for the prevention of chronic metabolic diseases and other age-related conditions.

#### Session 3290 (Symposium)

##### NOVEL APPLICATIONS OF ACCELEROMETRY DATA FOR HEALTH OUTCOMES IN OLDER ADULTS: THINKING BEYOND MVPA

Chair: Jennifer Schrack Co-Chair: Jacek Urbanek

Discussant: Manini Manini

Physical activity is a well-established predictor of health and longevity. Wearable accelerometers produce high-frequency, time series data that capture multiple aspects of daily physical activity across the spectrum of intensity. Historically, the majority of accelerometry-based physical activity research has employed summary threshold metrics such as moderate-to-vigorous physical activity, or “MVPA.” Although these measures are important for understanding compliance with physical activity guidelines, they underutilize the potential of this data. To advance the science of physical activity in older adults, more sensitive, clinically translatable measures are needed. This symposium will examine the associations between novel measures of accelerometry-derived physical activity and various aging-related health outcomes. Dr. Wanigatunga will discuss the association of physical activity volume and fragmentation with the frailty phenotype in the Study to Understand Vitamin D and Fall Reduction in You (STURDY). Dr. Cai will present evidence on the association of physical activity quantities and patterns with measures of visual impairment in the Baltimore Longitudinal Study of Aging. Ms. Qiao will present a novel accelerometry-derived measure of performance fatigability in the Developmental Epidemiologic Cohort Study. Finally, Dr. Urbanek will discuss the role of accelerometry-derived free-living gait cadence in defining fall risk in STURDY. Collectively, these presentations highlight critical associations between objective measures of physical activity and health outcomes in older adults and illuminate the need for thinking beyond MVPA to improve prevention and intervention efforts.

##### ACCELEROMETER-DERIVED PATTERNS OF PHYSICAL ACTIVITY AND INCIDENT FRAILTY

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Low physical activity (PA) is a common phenotype of frailty, but whether disengagement of daily lifestyle PA signals impending frailty remains unexplored. Using STURDY (Study to Understand Fall Reduction and Vitamin D in You) data from 499 robust/prefrail adults (mean age=76 + 5 years; 42% women), we examined whether accelerometer patterns (activity counts/day, active minutes/day, and activity fragmentation) were prospectively associated with incident frailty over 2 years of follow-up; 48 (10%) participants developed frailty. In Discrete-Cox hazard models adjusted for demographics, medical conditions, and device wear days,