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Old age generally leads to smaller, weaker and slower skeletal muscles. To address the independent effects of weakness vs. slowing on fatigue in aging, we used a custom ergometer in a whole-body, 3 tesla magnetic resonance system to quantify knee extensor size, torque, velocity, power and intracellular energetics at baseline and during two 4-min fatiguing contraction protocols; one in which contraction velocity was constrained and torque varied (i.e., torque-dependent contractions; isokinetic, IsoK), and one in which torque was constrained and velocity varied (i.e., velocity-dependent contractions; isotonic, IsoT). On separate days, 10 young (27.5±1.2 yrs, 6 men) and 10 older (71.2±1.6 yrs, 5 men) healthy adults completed the IsoK (120°·s<sup>-1</sup>, 0.5 Hz) and IsoT (20% maximal torque, 0.5 Hz) protocols, with continuous measures of intracellular [Pi], pH, and [H<sub>2</sub>PO<sub>4</sub><sup>-</sup>]. At baseline, contractile volume (803.5±72.3 vs. 1,125.6±109.9cm<sup>3</sup>), specific IsoK torque (0.035±0.004 vs. 0.058±0.007Nm·cm<sup>-3</sup>) and IsoT velocity (121.4±11.6 vs. 176.3±8.0deg·s<sup>-1</sup>) were greater in young than older (p≤0.023). Fatigue (%initial specific torque) was greater in young than older for IsoK (40.1±3.0 vs. 61.2±5.3%, p=0.0028), and accompanied by greater [Pi] and [H<sub>2</sub>PO<sub>4</sub><sup>-</sup>] and lower pH in the young (p≤0.001). For IsoT, fatigue (%initial velocity) was not different between groups (young: 56.5±5.5 vs. older: 47.2±4.9%, p=0.661), despite lower pH and greater [H<sub>2</sub>PO<sub>4</sub><sup>-</sup>] in young than old (p≤0.001). Collectively, these results reveal that normalizing dynamometer outputs to assess age-related differences in fatigue obscures baseline differences in muscle weakness. Further, our results suggest the contractile machinery may be less sensitive to changes in pH in older than young.

#### WHOLE GENOME LINKAGE SCAN IDENTIFIES A NOVEL LOCUS ON 3Q28 FOR TG/HDL-C RATIO CHANGE OVER TIME

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TG/HDL-C ratio (THR) represents a single inherited surrogate predictor of hyperinsulinemia or insulin resistance that is associated with premature aging processes, risk of diabetes and increased mortality. To identify genetic loci for THR change over time ( $\Delta$ THR), we conducted a whole genome linkage scan among subjects of European ancestry who had complete data from two exams collected about seven years apart from the Long Life Family Study (LLFS, n=3091), a study with familial clustering of exceptional longevity in the US and Denmark. Subjects with diabetes or using medications for dyslipidemia were excluded from this analysis.  $\Delta$ THR was derived using growth curve modeling, and adjusted for age, sex, PCs, familial membership, and then log-transformed to approximate normality. Our linkage scan was built on haplotype-based IBD estimation with 0.5 cM average spacing. Heritability of  $\Delta$ THR was moderate

(46%), and evidence for significant linkage (LOD>3) was identified on 3q28 (LOD=4.1). This locus harbors ADIPOQ among several other promising candidate genes. Interestingly, several studies previously reported suggestive evidence of linkage at this locus for relevant traits including adiponectin, dementia, AD and SBP. This linkage signal was not explained by significant GWAS SNPs for LPL or those under the peak (LOD attenuated to 3.7). In conclusion, we found a novel genetic locus on 3q28 for  $\Delta$ THR in subjects without diabetes selected for exceptional survival and healthy aging. Further query of sequence elements including rare functional and regulatory variants at this locus is underway which may reveal novel insights on insulin resistance mechanisms for aging.

## SESSION 3000 (PAPER)

### IMPROVING DEMENTIA CARE

#### CANADIAN CONSENSUS CONFERENCE ON PSYCHOLOGICAL AND NON-PHARMACOLOGICAL INTERVENTIONS FOR DEMENTIA

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Psychological and non-pharmacological interventions that could have a positive effect on outcomes important to persons living with dementia are essential to identify given the the limited efficacy of dementia medications and the diverse needs of persons living. In 2019, for the first time the Canadian Consensus Conference on the Diagnosis and Treatment of Dementia (CCCDDT) created a working group to develop recommendations related to a broad range of psychosocial and non-pharmacological interventions exist, typically aimed at improving cognition, symptoms, or well-being, as well as improving caregiver well-being and coping. The recommendations, primarily intended for primary care physicians, may also allow clinicians, organizations, and communities and help to better meet the needs of people living with dementia and their caregivers. A group of 11 experts, including persons living with dementia and informal caregivers, as well as clinicians and researchers from various organizations both nationally and internationally were invited to participate. A rapid review of meta-analyses and literature reviews on psychological and non-pharmacological interventions was conducted. The synthesized results were submitted for a consensus building approach using a Delphi method, involving a panel of more than 50 Canadian participants. Recommendations with a positive vote of 80% or more were considered to have reached consensus. All proposed recommendations reached consensus using the Delphi process. Details of the recommendations are

presented. Five recommendations are made: group or individual physical exercise, group cognitive stimulation therapy, psychoeducational interventions for caregivers, dementia friendly organizations/communities, and case management.

#### FEASIBILITY OF AUTOMATING FIDELITY MONITORING IN A DEMENTIA CARE INTERVENTION

Nancy Hodgson,<sup>1</sup> Ani Nencova,<sup>2</sup> Laura Gitlin,<sup>3</sup> and Emily Summerhayes,<sup>2</sup> 1. *University of Pennsylvania, Cherry Hill, New Jersey, United States*, 2. *University of Pennsylvania, Philadelphia, Pennsylvania, United States*, 3. *Drexel University, Philadelphia, Pennsylvania, United States*

Careful fidelity monitoring is critical to implementing evidence-based interventions in dementia care settings to ensure that the intervention is delivered consistently and as intended. Most approaches to fidelity monitoring rely on human coding of content that has been covered during a session or of stylistic aspects of the intervention, including rapport, empathy, enthusiasm and are unrealistic to implement on a large scale in real world settings. Technological advances in automatic speech recognition and language and speech processing offers potential solutions to overcome these barriers. We compare three commercial automatic speech recognition tools on spoken content drawn from dementia care interactions to determine the accuracy of recognition and the guarantees for privacy offered by each provider. Data were obtained from recorded sessions of the Dementia Behavior Study intervention trial (NCT01892579). We find that despite their impressive performance in general applications, automatic speech recognition systems work less well for older adults and people of color. We outline a plan for automating fidelity in interaction style and content which would be integrated in an online program for training dementia care providers.

#### HOSPITALIZATIONS IN ADULTS WITH ALZHEIMER'S DISEASE AND RELATED DEMENTIA—UNITED STATES, 2016–2017

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Alzheimer's disease and related dementias (ADRD) are a significant public health burden. Collectively, ADRD have been called the most expensive chronic conditions in the United States due to outsized health care utilization. Data from the 2016 and 2017 Healthcare Cost Utilization Project National Inpatient Sample, an all-payer representative sample of US hospitalizations, were used to describe hospitalizations in adults  $\geq 65$  years with ADRD. Chronic conditions were defined using International Classification of Disease, Tenth Edition, Clinical Modification (ICD-10-CM) code definitions from the Centers for Medicare and Medicaid Services Chronic Conditions Warehouse. Code definitions from the Agency for Healthcare Research and Quality defined potentially preventable hospitalizations where admission might have been avoided by appropriate outpatient primary care management. One in six hospitalizations in adults  $\geq 65$  years were for persons with ADRD, including 1 in 3 adults  $\geq 85$  years. Among those with ADRD-related admissions, the

most common reasons for admission, as defined by the principal diagnosis, were heart disease (18.1%), certain infections (14.5%), injuries (12.7%), respiratory illness (11.2%), and genitourinary conditions (10.4%). In hospitalized adults with ADRD, the prevalence of diagnosed urinary tract infection (37.0%)—a potentially preventable hospitalization—is more than double the prevalence in adults without ADRD (15.5%, prevalence ratio = 2.39, 95% confidence interval: 2.37-2.42). Common comorbidities, injuries, and potentially preventable hospitalizations all contribute to hospitalizations in adults with ADRD. Focusing on injury prevention and appropriate outpatient management of comorbidities in adults with ADRD might reduce the number of hospitalizations, including potentially preventable hospitalizations, among adults with ADRD.

#### NURSE VISITS, SITE OF CARE, AND HOSPITALIZATION AMONG HOSPICE PATIENTS WITH DEMENTIA

Elizabeth Luth,<sup>1</sup> David Russell,<sup>2</sup> Holly Prigerson,<sup>3</sup> Kathryn Bowles,<sup>4</sup> and Miriam Ryvicker,<sup>5</sup> 1. *Weill Cornell Medical College, Larchmont, New York, United States*, 2. *Appalachian State University, Boone, North Carolina, United States*, 3. *Weill Cornell Medicine, New York, New York, United States*, 4. *University of Pennsylvania School of Nursing, Philadelphia, Pennsylvania, United States*, 5. *Visiting Nurse Service of New York, New York, United States*

Persons with dementia comprise up to 50% of hospice patients and face an increased risk of burdensome, disruptive, and costly discharge from hospice due to hospitalization. The relationship between timing, dose and site of hospice care provided, all modifiable factors, and risk of hospitalization is poorly understood. We use a retrospective cohort analysis of 2,692 electronic health records of hospice patients with dementia who received care from a large hospice agency in New York City between 2013-2017 to determine the relationship between hospice service delivery (e.g., number and timing of nurse visits, home vs. facility-based) and risk of hospitalization (vs death). We control for demographic and clinical characteristics of patients. 9.36% of patients with dementia were hospitalized. Hospice service delivery factors were significantly associated with risk of hospitalization. Each additional nurse visit was associated with a 5% decrease in risk of hospitalization (AOR: 0.95, 95% CI: 0.92-0.98). Each additional day between last nurse visit and discharge was associated with a 7% increase in risk of hospitalization (AOR: 1.07, 95% CI: 1.04-1.11). Home hospice was associated with 97% higher odds of hospitalization (AOR: 1.97, 95% CI: 1.19-2.09). Hospice patients with dementia who receive services at home, receive fewer nursing visits, and have increased time between nursing visits are at increased risk for hospitalization. Research is needed to determine if increasing the number and timing of nursing visits can reduce risk of hospitalization in this population.

#### THE NEED TO SEE THE WORLD: OUTINGS AND MEANINGFUL ENGAGEMENT AMONG ASSISTED LIVING RESIDENTS WITH DEMENTIA

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