

## INTERDISCIPLINARY INNOVATIONS UTILIZING PET ROBOTS TO MEET RESEARCH, EDUCATION, AND CARE NEEDS

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Studies of the impact of robotic companion pets are proliferating, authored by several disciplines, each with different concerns. Roboticians focus on technology design and artificial emotional intelligence as opposed to general preferences for soft, furry, interactive animals. Others worry that as people interact with potentially deceptive technology, they may think the pet is alive. While aware of these serious concerns, gerontologists have focused on how lonely older persons without cognitive impairment respond to social 'helper' robots. More recent studies emphasize the possible impact of animatronic pets on persons with dementia (PWD). Therapeutic benefits of these pets are just being established. Our current pilot study is timely in that it now involves semi-structured interviews with formal/ informal caregivers of PWD who have been given a robot pet. We are eliciting perceptions, opinions, and observations of the PWD's response to robotic pets. We recruited 8 gerontology students as much-needed assistants for a research-driven topics course to afford them field exposure to PWD, caregivers, and direct research experience. Because students seldom have experience either with robotic pets or PWD, they read selected articles and received training/practice in semi-structured interviewing techniques. Students next conducted interviews with caregivers of PWD who have interacted with the pets. All interviews are audio-recorded, transcribed and deposited in the Carolinas Conversations Collection. Content and thematic analysis of transcriptions, student activity logs and bi-weekly reflective discussions will inform next steps in intervention research, testing therapeutic outcomes such as agitation reduction by pet robots for PWD.

## LOW COGNITIVE PERFORMANCE INCREASES THE RISK OF HOSPITAL-ASSOCIATED COMPLICATIONS IN OLDER ADULTS

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Considering the limited evidence regarding the factors that contribute to long-term consequences after hospitalization of older people, we analysed the relationship between cognitive performance and hospital-associated complications (HAC). One thousand, three hundred Individuals aged 60 and older (mean age 82.3, 53.3% female), not assigned to palliative care and admitted in medical and surgical wards from a private hospital, were followed up from admission to 30 days after discharge. HAS was evaluated using a multicomponent measure that combines 12 hospital-associated complications (delirium, functional decline, falls, pressure injuries, bronchoaspiration, non-planned ICU transfer, physical restraints, hospital stay > 30 days, death, long-term care transfer, and readmission). Cognitive performance was

assessed using the "10-point cognitive screener (10-CS)", which combines temporal orientation, category fluency, and word recall evaluation. Results: Overall, 464 (35.7%) participants had one or more HAC during their admission. Patients with HAC showed lower 10-CS scores than those with in HAC ( $p < 0.001$ ). Adjusting for sociodemographic data, medication, chronic diseases, delirium screening, functional performance, each 10-CS point decreased the HAC changes by 19.2% (odds ratio = 0.808; 95% CI = 0.660 – 0.990). Conclusion: These findings show that low cognitive performance was significantly associated with the risk of developing HAC during hospitalization and within 30 days after discharge. That evidence forms the critical foundation for the next steps towards validating the accuracy of these models in predicting vulnerability to HAC and developing screening tools to be used at the point of care.

## LUNG FUNCTION RESERVE AND PHYSICAL FUNCTION IN HEALTHY OLDER ADULTS: FINDINGS FROM BLSA

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Forced Expiratory Volume in 1-second (FEV1) that falls below the lower limit of normal (LLN) is a well-established correlate of functional limitation and disability. However, less is known about the functional implications of gradations of lung function above the LLN. We examined the cross-sectional association between gradations of healthy lung function and usual gait speed, reported walking ability, and fast 400m walk performance in 750 persons (50.7% men) aged 55-95 free from respiratory disease and mobility limitations, participating in the Baltimore Longitudinal Study of Aging (BLSA). The 2012 Global Lung Initiative (GLI) reference equations were used to calculate FEV1 Z-scores, with healthy lung function categorized as follows:  $-1.6 < Z \leq -1.0$  (pre-clinical),  $-1.0 < Z \leq -0.3$  (low normal),  $-0.3 < Z \leq 0.3$  (normal),  $0.3 < Z \leq 1.0$  (high-normal), and  $Z > 1.0$  (high). Associations between gradations of healthy lung function and physical function were evaluated using multivariate linear regression, adjusting for age, sex, height, weight, and waist circumference. Compared to the 'pre-clinical' category, the difference in 400m walk time was 0.71 ( $p > .05$ ), -6.60 ( $p > .05$ ), -12.21 ( $p < 0.05$ ), and -15.52 ( $p < 0.01$ ) seconds for the 'low normal', 'normal', 'high-normal', and 'high' categories, respectively. No associations between gradations of healthy lung function and normal gait speed or walking ability were found ( $p > 0.05$ ). Higher levels of lung function reserve are associated with better 400m walking performance, thus efforts to promote and/or reduce loss of lung function reserve may help individuals maintain high functional capacity in later life.

## MAINTENANCE OF PHYSICAL FUNCTION IN ADULT AND OLDER ADULT MICE USING AEROBIC EXERCISE

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