

muscle power, prehensile strength, physical performance, gait speed, phenotype of frailty status, level of physical activity, and other sociodemographic factors were contrasted. The UCT internal ethics committee.

**Results:** Preliminary results showed that, among the demographic variables, women over 60 had a lower level of schooling, with 29% having incomplete basic education. Both groups reported a similar number of children: 93% in those under 60 and 100% in those over 60, with an average of 2.3 and 3.06 children, respectively. Statistically significant differences were detected in physical performance, lower limb strength, and gait speed, which were higher in women under 60.

**Conclusions:** The present report detected that lower limb strength, a determinant of great relevance in the aging population, affects gait speed. Likewise, muscle strength leads to a more rapid decline in older people. In both groups, physical performance played a crucial role in characterizing aging and frailty, particularly at ages over 60, when a decline in performance was evident. Notably, there were no variations in grip strength or physical activity levels, possibly because both groups performed poorly, raising the possibility of functional decline in women who have not yet reached old age.

**Keywords:** muscle strength, physical performance, gait speed, frailty.

## **P6: Functional relationship between locomotion and structural muscle fibers in Alzheimer's Disease, an experimental report from 3xTg-AD mice**

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**Introduction:** Motor impairment remains underexplored in Alzheimer's disease. We previously described the functional impairment of gait and exploratory activity of male 3xTg-AD mice at different stages of Alzheimer's disease progression. We describe movement limitations and muscle weakness as indicators of severity.

**Methods:** In the present report, a cross-sectional study was carried out that analyzed the muscular structure of the quadriceps and triceps surae muscles of transgenic (3xTg-AD) and non-transgenic males in the early (6 months), intermediate (12 months), and advanced (16 months) stages of Alzheimer's disease. Longitudinal sections of the quadriceps and triceps surae stained with hematoxylin and eosin (H&E) were evaluated. Using conventional histological techniques, they were then rinsed with PBS, pH 7.4. For the F-actine immunohistochemistry, the sections were blocked by incubating them in IgG-free 2% bovine serum albumin (BSA, Sigma) for 60 min. Then specimens were incubated for 10 minutes with 0.2% Triton X-100 in PBS at room temperature. The slides were incubated overnight at 4 °C with F-actin (Santa Cruz Biotechnology Inc., CA, USA). Slides were counterstained with VectaShield using 4, 60-diamino-2-phenylindole dihydrochloride (DAPI) (Vector Labs., CA, USA) for nuclei staining and visualized in the blue channel.

**Results:** Lower fluorescence labeling was detected in 3xTg-AD mice at all ages, with a greater decline at older ages. Signs of sarcopenia are also present in an advanced stage of AD, with differences in fiber distribution, the number of cell nuclei, and the presence of adipose tissue.

**Conclusions:** The previously reported gait alterations in Alzheimer's disease could be the result of structural deficiencies due to sarcopenia and poor muscle contraction, which leads to the limitations of movement in locomotion reported in 3xTg-AD mice.

**Keywords:** 3xTg-AD, Alzheimer's disease, locomotion, muscular strength, muscle fibers

## **P7: Subjective memory correlates with hippocampal subfield volumes in normal cognitive aging**

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**Objectives:** Subjective memory concerns are associated with increased risk for Alzheimer's disease (AD). Self-perception of frequency of memory slips, in particular, correlates with neuroimaging markers of AD including cerebral amyloid deposition and functional connectivity of the hippocampus and posterior default mode network. The hippocampal complex includes functionally and structurally distinct subfields (cornu ammonis (CA), dentate gyrus, and subiculum) which show selective atrophy in aging and in AD, as well as psychiatric conditions such as major depressive disorder. In the current study, we measured hippocampal subfield volumes in cognitively unimpaired older adults and examined their association with frequency of forgetting and verbal memory.

**Methods:** Participants were 51 older adults (23M, age 71.0 SD = 6.3) with normal neuropsychological test performance who completed the Memory Functioning Questionnaire (MFQ) and a high-resolution T2-weighted scan of the medial temporal lobe at 3T. The Automatic Segmentation of Hippocampal Subfields (ASHS) processing pipeline was used to extract CA1, CA2, CA3, dentate gyrus, and subiculum volumes. Partial correlations were performed within the total sample to examine the association between subfield volumes and MFQ Frequency of Forgetting ("How often do you....?") subscale scores, which has been linked to AD neuroimaging markers,<sup>19–21</sup> as well as long delayed recall scores on the California Verbal Learning Test (CVLT-LDR). Covariates were age, sex, and total intracranial volume.

**Results:** Frequency of Forgetting was significantly correlated with left CA2 [ $r = .42$ ,  $P = .003$ ] and right subicular volume [ $r = .45$ ,  $P = .001$ ]. In contrast, CVLT-LDR was not correlated with any hippocampal subfield volume. No other hippocampal subfield volumes were correlated with Frequency of Forgetting.

**Conclusions:** The associations between subicular volume, a region implicated in AD, and subjective, but not Objectives memory, suggests that self-perception of frequency of memory lapses in daily life may be sensitive to subtle, early AD-related volumetric changes within the hippocampus. The similar dissociation found for CA2, a region linked to social memory in animal models, is noteworthy. These findings suggest potential neuroanatomical mechanisms for the association between subjective memory concerns and AD risk.