

## 420 - Translational modeling of psycho-motor function in normal and pathological aging with special concerns on the effects of isolation

Lidia Castillo-Mariqueo<sup>1,2</sup> and Lydia Giménez-Llort<sup>1,2</sup>

<sup>1</sup> Department of Psychiatry and Forensic Medicine, School of Medicine, Universitat Autònoma de Barcelona, Barcelona, Spain

<sup>2</sup> Institut de Neurociències, Universitat Autònoma de Barcelona, Barcelona, Spain

<sup>3</sup> Envellir bé – Saber Envejecer - Healthy Aging Charity Organization, Sant Quirze del Vallès, Barcelona, Spain

Time factor and human support are major constraints in the management of the COVID-19 pandemic and they enhance the challenges to adapt the lifestyles and intervention programs, with greater impact on the elderly people, especially those who are the most physically or cognitively frail. The restrictive confinement and the closing of the day centers has left those whose frailty requires permanent rehabilitation programs at home. In the case of Alzheimer's disease (AD) and other dementias, non-professional home care may not be enough to cover the needs and demands of these complex disorders. On the other hand, as elder people, these patients can be particularly affected by social isolation, which can cause changes in behavior and decrease functional performance in the basic activities of daily life, worsening their BPSD and cognitive impairment. In this context, and under the gaze of normal and pathological aging, we are developing a functional model of psycho-motor evaluation that allows us to study psycho-motor function, including motor learning and memory. Its translational value relays in the modeling of tests used in clinical settings. Here we present the very first results. We have selected the gold standard C57BL/6 mice together with the triple transgenic model of AD (3xTg-AD) to apply our psycho-motor protocol. We have included a series of measurements that make possible to differentiate several dimensions of basal motor learning, and the learning associated with fragile situations. We have found common as well as distinctive features between the sample of normal and AD-pathological aging, and under the isolation scenario. Among all, we can highlight the gender factor and the level of physical activity as a protective mechanism when indicators of frailty are present. Particularly, the 3xTg-AD mice show greater deterioration in physical aspects, but they retain their motor learning capacity comparable to the controls. On the other hand, higher performance in tests of exercise tolerance and muscle strength stand out in these mice, where genotype and gender appear to be determinant factors in overall physical performance: This generates new hypotheses of underlying biological protection mechanisms in translational scenarios relevant for the rehabilitation of geriatric and AD-patients.