A rehabilitation program with exergames to address fear and risks of falling in older adults

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Lapierre et al. (2020). Gerontechnology 19(suppl); https://doi.org/10.4017/gt.2020.19.s.69985

Purpose Each year, 30% of older adults fall, which leads to serious health consequences and fear of falling (Phelan & Ritchey, 2018). Fall prevention programs can reduce up until 30% of the fall risks if they combine different exercise categories (Skjæret et al., 2016). Medimoov (Fig. 1), a patient-personalized exergaming platform for older adults, can positively influence functional abilities and motivation (Tallon et al., 2015). This study aims to evaluate the feasibility of Medimoov-based rehabilitation to address fear of falling and fall risks with vulnerable older adults in a geriatric hospital. The hypothesis is that Medimoov can lead to decreased fear of falling and fall risks. **Methods** This feasibility study, following a multiple case study design, was conducted in Charles Foix Geriatric Hospital (France). Three participants were recruited among cardiogeriatric and neuropsychogeriatric wards. Selection criteria were: 1) ≥65 years old, 2) to be able to stand upright in a bipedal position for ≥ 1 minute, 3) to express fear of falling, 4) not to be under a legal protection measure, 5) not to have an acute pathology 6) to be able to understand simple instructions. The Medimoov exergaming platform works with a Kinect camera, a projection screen and a computer. It offers different games that can be personalized by the rehabilitation professional (i.e. the psychomotor therapist) according to the rehabilitation plan and the older adult's capacities. In brief, the professional chooses the type of movements which interact with the games. A progression in the games is also recorded. The rehabilitation program lasted four weeks and included 35-minute weekly sessions guided by psychomotor therapist. Participants were offered to use a harness to protect them from injury or falling. **Results and Discussion** All the participants completed the program and appreciated the sessions. They were all motivated to finish each session despite their fatigue and their fear of falling. We concluded that Medimoov can be used to address fear and risk of falling, two key aspects of fall prevention (Phelan & Ritchey, 2018). Based on the results of this study, a randomized controlled trial will be conducted to evaluate the effects of Medimoov on fear and risks of falling. This approach offers new perspectives on fall prevention technologies.

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Keywords: older adults, falls, exergames, fear of falling, randomized controlled trial

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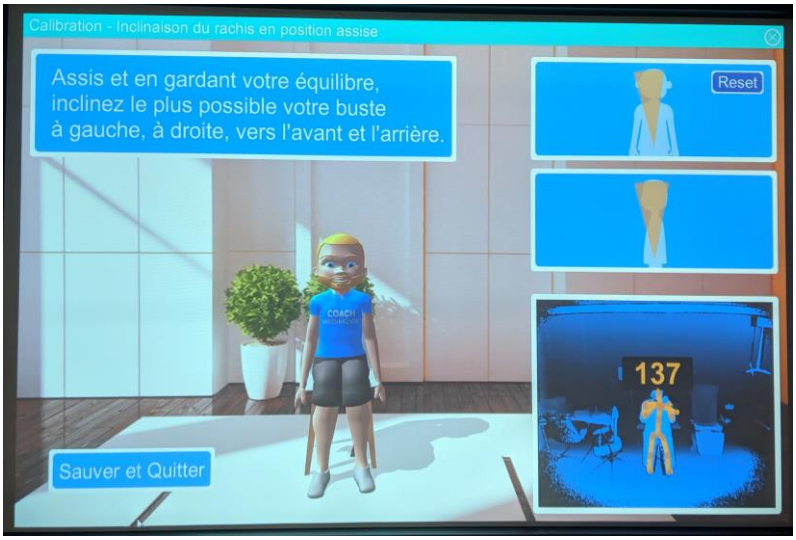

Figure1. Example of the Medimoov interface during calibration