

A. NEVEN, A. CUENEN, J. URLINGS, T. BELLEMANS, D. JANSSENS, G. WETS. **Supporting older individuals' safe outdoor mobility and driving behaviour.** *Gerontechnology* 2016; 15(suppl):113s; doi:10.4017/gt.2016.15.s.676.00

Purpose Mobility is an important element in quality of life (QoL) of elderly people: it enables them to participate in daily activities such as shopping and maintaining social contacts, and thereby reduces the chance of depression and social isolation. If elderly people are able to continue their safe mobility, it is expected to have an overall positive effect not only on their (and their caregivers' or family's) wellbeing, but also on society in general. A number of challenges arise with the ageing of the population: the mobility of seniors will also increase, coinciding with an increase in older drivers¹, but elderly people are a specific risk group in traffic². Elderly people may experience a decline of cognitive, visual and physical functioning, which are important determinants of driving, but also may influence the use of other travel modes like public transport. Therefore, some (technological) interventions are examined in order to promote and maintain their safe mobility.

Method We make use of a fixed-based driving simulator in order to both assess and train the driving ability of elderly. In collaboration with Jessa hospital, a test battery of physical, visual and cognitive tests was performed to investigate the functional abilities of the elderly. Together with the results of a driving test in the driving simulator, these tests allow us to predict driving performance and identify strong and weak points. In a next step, the driving ability is maintained or improved through training. A direct approach focuses on training specific aspects of driving behaviour that were identified as being insufficient by making use of the driving simulator (e.g. by getting personalized constructive feedback). An indirect approach focuses on training the important underlying determinants of driving; e.g. a cognitive computer based training to improve cognition skills. For elderly people who are no longer able to drive, and suffer from communication or anxiety barriers to travel alone, the use of technology can also be supportive. A smartphone app Viamigo was developed (in cooperation with Thomas More) by which elderly people can be monitored from a distance by a personal coach (e.g. a family member, friend or caregiver), adapted to their specific travel patterns.

Results & Discussion Various aspects of simulated driving performance in healthy elderly people could not be accounted for by age alone, but were dependent on various functional abilities³. Additionally, fitness to drive as assessed by an on-road test was best predicted by a combination of visual, physical and cognitive factors. The results of the training programs for healthy elderly people showed that cognitive training had mainly effects on cognitive skills but only limited on driving ability; while simulator training had positive effects on several aspects of driving ability. Data of elderly people with cognitive impairment is now being collected. The use of Viamigo leads to a higher independence for elderly people and more confidence in their social network, and can be beneficial for different target groups, like community-dwelling elderly people with mild dementia. In summary, it was shown that the use of technology is very promising in prolonging the safe mobility behaviour of the elderly, leading that elderly people can reside longer and with a higher QoL in their home environment.

References

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