

Simfit2drive: Integrating Simulated Driving Technology into Neurological Assessment and Rehabilitation

BEACHAM, R.¹ HOWLAND, R.²

¹Hobbs Rehabilitation, UK ²SimFit2Drive, Slovenia
email: rosebeacham@hobbsrehabilitation.co.uk



Introduction

The ability to drive is closely tied to independence, social participation, and quality of life. Neurological conditions such as stroke, traumatic brain injury, Parkinson's disease, and multiple sclerosis can significantly impair the cognitive, motor, and perceptual skills essential for safe driving. SimFit2Drive is an emerging technology device developed to assess and enhance driving-related skills in individuals with a range of neurological impairments.

This innovative simulation-based device offers a safe, controlled environment in which users engage in driving tasks that replicate real-world scenarios. Designed to complement the clinical expertise of trained occupational therapists, SimFit2Drive is currently being used both as an assessment tool and as treatment. Expert clinicians from Hobbs Rehabilitation are integrating the device into innovative neurorehabilitation programmes, whilst also working alongside SimFit2Drive in product development. They are looking into how the device supports functional impairments and therapeutic interventions that target visual-spatial processing, reaction time, attention, coordination, and executive functioning—critical components of driving competence.

This poster explores the application of SimFit2Drive in clinical settings, highlighting its current use by occupational therapists and its potential role in bridging the gap between impairment-based assessments and real-world functional outcomes.

**VISUAL
RESPONSE**

**PERIPHERAL
VISION**

**SELECTIVE &
SUSTAINED
ATTENTION**

**DISTRACTIBILITY
BEHAVIOUR**

Method

Assessments and trials are taking place within the clinical setting over a 60-90minute period with follow up block sessions of up to 6 weeks. Hands on therapy and verbal prompting are provided as needed to encourage errorless learning and engagement in a challenging task with a predominantly bilateral focus. Patients can focus on lower limb or upper limb use with a range of complexity settings being available depending on the level of cognitive and physical impairments. Patients get the opportunity to have a test run with each setting before results are formally recorded when the assessment officially begins. Results being collated are currently in a numerical data and report format which needs to be interpreted into neurological based outcomes and transferred into comparable information that can evidence specific trends and outcomes in the near future with SimFit2Drive.

Results

So far 10+ Patients have trialled the device or used it within therapeutic context. Clients are engaging well with the technology device providing real life opportunities in a functional context. This has highlighted varying levels of impairments and their severity when presented in a high level cognitively and physically demanding activity. Raising insight and building on levels of confidence has been a noticeable element when using the device in conjunction with other therapy. On-going use and development of the device is needed to continue to create functional contextual simulations that continue to challenge and retrain an individual to strengthen specific physical areas and use strategies and repetition when working on areas of cognitive impairment.

STRENGTH

AGILITY

RANGE

BILATERAL MOVEMENT



Conclusion

While formal research and evidence collection are on-going, early clinical use suggests that SimFit2Drive exposes individuals to the skills and specific elements of driving and supports skill re-training in a dynamic and motivating format. Its incorporation alongside traditional hands-on therapy may offer a more holistic view of a client's capabilities and rehabilitation potential. As evidence builds, SimFit2Drive may become an essential component of neurorehabilitation pathways for individuals aiming to return to driving or adapt to alternative forms of community mobility. It is felt that skills and rehabilitation carried out using this piece of technology will transfer over into other functional activities which remain goal and client centred.