SensoFlex: a novel exergame device for motor-cognitive telerehabilitation in older adults

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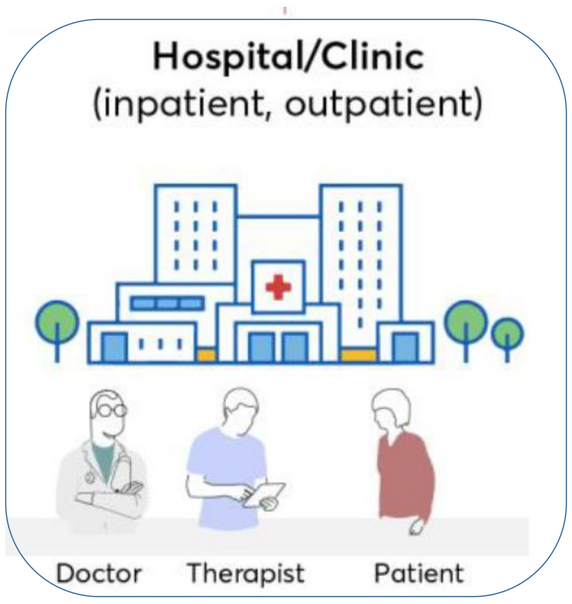
1. INTRODUCTION

Geriatric rehabilitation: present model

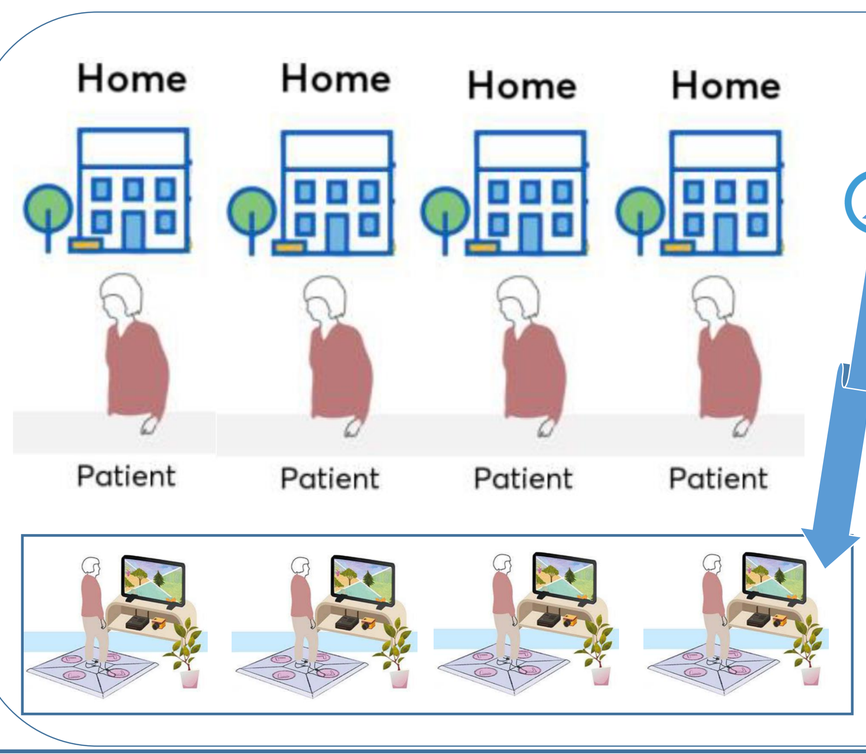
One-to-one in-clinic sessions



-prolonged rehab. is often missing
-not always accessible

Geriatric rehabilitation: future model

Home-based cognitive-motor tele-rehabilitation.



- Comparable effect to traditional approaches [1]
-More accessible ad cost effective [2]
-More rehab. sessions (↑ continuum of care)
- More patients at the same time
- Remote patient monitoring and training tailoring

AIM: (a) describe a novel exergame device for geriatric motor-cognitive home rehab., (b) show results about the discriminant ability of the performance measures extracted from 3 exergames, (c) provide data on acceptance and enjoyment of the device

2. METHODS

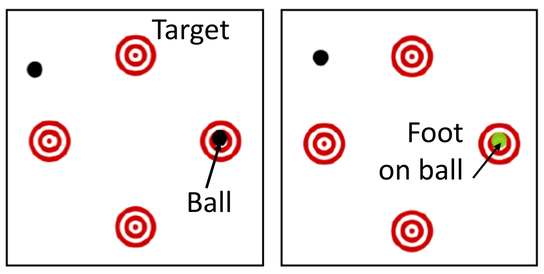
The Device

SensoFlex (Dividat, CH)

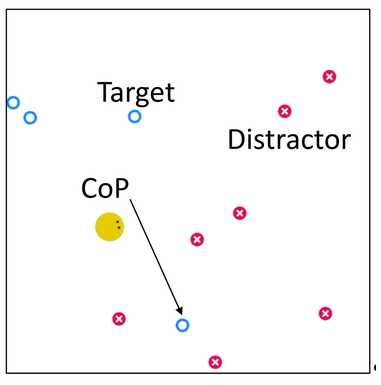
- foldable mat (1m x 1m)
- 47 x 47 piezoresistive force sensors (resolution: 0.5 kg, accuracy: <1%)

The Exergames

Targets



Evolve



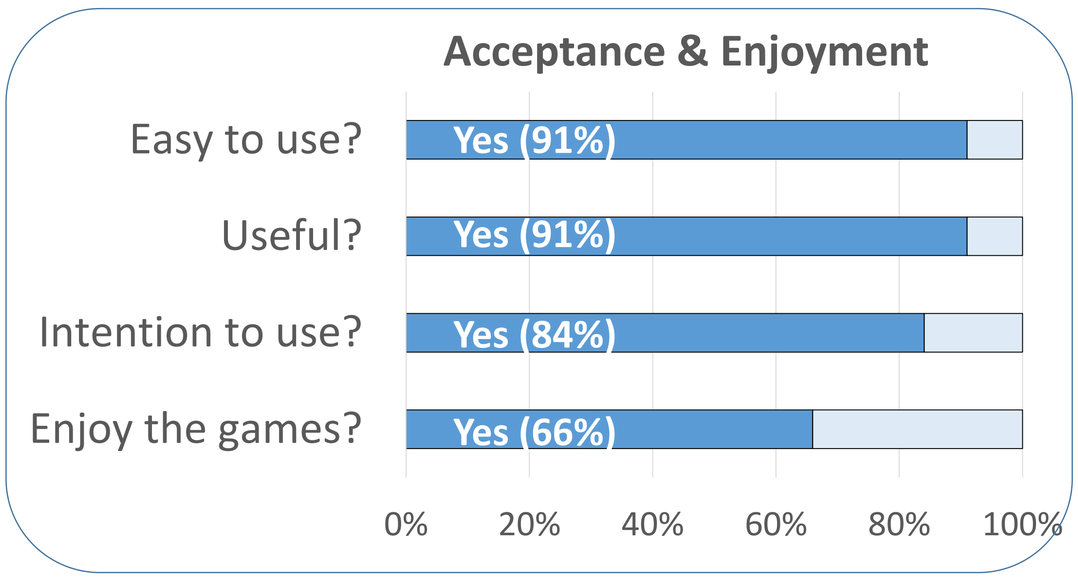
Rocket

Subjects: 10 young (35±10 yrs) and 45 elderly (72±8 yrs)

3. RESULTS & DISCUSSION

Exergame	Measure	Young	Elderly
Targets	Hit Targets [n]	42 ± 20	19 ± 11 *
Evolve	Precision [%]	80 ± 15	66 ± 17 *
Rocket	Cadence [step/s]	2.4 ± 1.4	1.3 ± 0.7 *

- performance measures automatically computed by SensoFlex discriminate between young and older adults



- SensoFlex is highly accepted by older adults
- 2/3 of older subjects found the exergames enjoyable

ONGOING: RCT to analyze feasibility and efficacy of a SensoFlex-based motor-cognitive home training in elderly

4. REFERENCES

[1] Yang C, et al. Gerontologist 2020; 60:633-42;
[2] Sixsmith A, et al. Public Policy & Aging Report 2017;27:74-8