SERIOUS GAME IN STROKE REHABILITATION
UPORABA RESNIH IGER V REHABILITACIJI PO MOŽGANSKI KAPI

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Abstract

A serious game is defined as a game that has education or rehabilitation as primary goal. Entertainment is a secondary goal. There is a growing interest in serious games in the field of rehabilitation, especially for stroke rehabilitation. Up to now, they are mainly dedicated to motor rehabilitation. But there is also an interesting potential for cognitive rehabilitation. Unfortunately, several terms are used to talk about serious games: exergame, videogame, rehabilitation game, … We should then be cautious when performing bibliographic research. Various devices allow to use serious game: robot, virtual reality, tablet, motion capture system. Most devices are low-cost systems that can be used in rehabilitation centres and at home. The serious game is a means of enabling the patient to self-rehabilitate, as a complement to other therapeutic approaches, in order to intensify and prolong treatments. Moreover, serious games allow to implement the re-learning principles: adaptation of the difficulty of the game to maintain motivation and stimulate recovery, intensive task-oriented practice, multiple explicit and implicit feedbacks. They also promote patient's adherence. We recently performed a systematic review with meta-analysis assessing the effectiveness of serious game for upper limb rehabilitation after stroke (Doumas et al., 2021). This meta-analysis confirms the effectiveness of serious games on upper limb motor function and activity. This is especially true if the serious games are specifically developed for neurorehabilitation and based on neurorehabilitation principles. They are then also perceived more enjoyable and less effortful by the patients. A multi-user mode would promote their social involvement.

Key words:

devices; motor rehabilitation; self-rehabilitation; re-learning; meta analysis

Povzetek

Resna igra je igra, ki je prvenstveno namenjena izobraževanju ali rehabilitaciji. Na področju rehabilitacije, še zlasti po možganski kapi, je vse več zanimanja za resne igre. Doslej so bile namenjene predvsem gibalni rehabilitaciji, a lahko bi bile koristne tudi za kognitivno rehabilitacijo. Žal se za resne igre uporablja več izrazov: igre za vadbo, video igre, rehabilitacijske igre,… Zato moramo biti previdni pri iskanju po bibliografskih podatkovnih zbirkah. Za resne igre se lahko uporablja različne naprave: robote, navidezno resničnost, tablične računalnike, sisteme za zaznavanje gibanja. Večinoma gre za nizkocenovne sisteme, ki jih je moč uporabljati v rehabilitacijskih ustanovah ali doma. Resna igra je sredstvo, ki omogoča pacientu, da se sam rehabilitira, kar dopolnjuje druge terapevtske pristope ter krepi in podaljšuje zdravljenje. Poleg tega resne igre udejanjajo načela ponovnega učenja: prilagajanje zahtevnosti igre, da se vzdržuje motivacijo in pospešuje okrevanje, intenzivno vadbo posamezne naloge ter mnogotere izrecne in posredne povratne informacije. Resne igre tudi pomagajo pacientu vztrajati v terapevtskem procesu. Nedavno smo opravili sistematični pregled z meta analizo za oceno učinkovitosti resne igre pri rehabilitaciji zgornjih udov po možganski kapi (Doumas in sod., 2021). Ta meta analiza potrjuje učinek resne igre na funkcijo zgornjih udov in dejavnosti. To še zlasti drži, če so resne igre posebej razvite za nevrorehabilitacijo in temeljijo na nevrorehabilitacijskih načelih. V tem primeru jih pacienti tudi zaznavajo kot bolj prijetne in manj naporne. Razširitev na več igralcev bi razvijala tudi socialno vključenost.

Ključne besede:

naprave; gibalna rehabilitacija; samorehabilitacija; ponovno učenje; meta analiza

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