A. Rademaker, S. van der Linden, J. Wiersinga. SilverFit, a virtual rehabilitation system. Gerontechnology 2009;8(2):119; doi: 10.4017/gt.2009.08.02.012.00 Virtual rehabilitation is an upcoming field of physiotherapy[1]. Until recently, access to workable systems has been prohibited by price or limited to research settings. SilverFit[2] provides an affordable hardware and software platform to facilitate physical rehabilitation of elderly people, e.g. after a stroke, a fall, or a cardiac incident. Physical rehabilitation is stimulated by offering a suite of specially tailored computer games that react to players' body movements and motivate the player/patient to complete their exercise regime. **Technical description** SilverFit utilizes a time-of-flight (TOF) camera that can track the full body movement of a player in three dimensions. All gross motor movements, like body posture adjustments, arm movements, standing up, sitting down, walking, etc. within a 5x5 meter area can be traced by the system in a 176x144 pixel array. The camera input is converted by specially designed software to interpret the player's movements and convert these into game elements shown on a HD flatscreen or beamer. **User studies** SilverFit has been in daily use since September 2008 in a pilot study in the geriatric care centre Wiekendael in Roosendaal, The Netherlands. Usage tracking shows that the system is used on 98% of the working days (supervision of a therapist was required during the pilot test). Most days, it is in use from 10:00-12:00H and again from 13:00-16:00H, reflecting the daily pattern of living in the geriatric care centre. As from January 2009 the system is available for purchase by rehabilitation professionals. The SilverFit game suite has now been used by roughly 50 therapists working with over 200 patients. Informal feedback shows that patients are tremendously motivated by the games; therapists indicate that their patients often turn out to be capable of physical activities never observed before in the course of the rehabilitation. Direct user feedback has been collected on many aspects such as level of exercise, graphics, interface and game play. A more formal user study is underway in cooperation with the Avans University for Applied Sciences of Breda. This study compares the SilverFit games with traditional physiotherapy on three dimensions: (i) objective amount of exercise done; (ii) subjective user experience; and (iii) subjective therapist impression. From the initial results, both patients and therapists highly value the motivational impact of the gaming environment. The intensity of movement, as measured by the number of adjustments in body posture and the direction of movement per unit of time, is higher when using SilverFit.

Two ladies doing balance exercises with SilverFit

References

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