A new perspective for Virtual Mirror Therapy

Developing a low-cost-high-convenient environment utilising the Wiimote

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The Nintendo Wii-Technology will be used for Virtual Mirror Therapy with stroke patients. A special software-application and a therapy-plan will be developed and analyzed regarding different research aspects.

A | RELEVANCE

- Proposals have been given previously for enhancing mirror therapy with virtual reality.
- The Nintendo Wii introduced a new active interaction method that attracts attention of scientists and therapists motivated by its simple technique and great market share.
  - Available Games are tested in clinical practice
  - Games are not developed for systematic therapeutic use

B | OBJECTIVES

- We aim to develop a virtual environment for Mirror Therapy with stroke-patients that utilizes the Wiimote.
- Different research methods will be applied to explore questions regarding applicability and effectiveness of the system.

C | APPROACH

DEVELOPMENT

The technical component of the therapy system consists of a computer with an adequate output device and the Wiimote, which can be connected via Bluetooth-Interface to every computer.

Software
generates a virtual reality for Mirror Therapy
displays a computer-generated representation of the patients' limbs
controlled according to the principals of Mirror Therapy with the Wiimote.

Therapy plan
is limited to movements of one joint
fits to the boundaries of the technology

ANALYSIS

Gain information regarding the following research aspects.

Effectiveness
pre- and posttreatment functional assessments

Experience
qualitative interviews with patients and therapists regarding their experience with the system
generate hypotheses about system integration in a practical setting

Immersion
Eyetracking will be used to analyze the immersive character of the generated virtual reality.
Data will be combined with subjective feedback of the patients

D | HYPOTHESES

- The technical parameters allow to develop a low-cost-high-convenient therapy system for practical use
- Training with the developed system will improve motor-function
- Virtual Environments have measurable impact on the patient-therapist interaction
- Eyetracking will gain information about the immersive character of the system

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