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*Publication date:*  
2010

*Document Version*  
Publisher's PDF, also known as Version of record

[Link to publication from Aalborg University](#)

*Citation for published version (APA):*

Knudsen, L., Baskarada, D., Nedergaard, N., Pedersen, R. B., Vink, L. G., Moeslund, T. B., Puggaard, H., & Lassen, L. (2010). *Using Augmented Reality as MVF Treatment for CRPS Patients*.

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## POSTER 16

## Using Augmented Reality as MVF treatment for CRPS patients

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**BACKGROUND:** Mirror Visual Feedback (MVF) is an important part of therapeutic treatment of Complex Regional Pain Syndrome (CRPS). Unfortunately mirror boxes (MB) are not compatible with meaningful activities. Recently it was shown that Virtual Reality (VR) as MVF treatment makes this possible. This work examines Augmented Reality (AR) as MVF treatment.

**MATERIALS AND METHODS:** An AR setup was built for CRPS patients with left arms as affected extremities. The AR displays a virtual left arm, which mirrors the movements of the right arm, on images of the real world. To explore motivational benefits a game was also implemented.

Ten healthy subjects participated in cross tests to compare AR, MB and VR. Interviews were used to examine the subjects' experiences and opinions.

**RESULTS:** A convincing mirror illusion was present in the AR setup. AR provided a better illusion than VR. The game diminished the illusion but improved motivation. Every participant preferred AR over both MB and VR.

**DISCUSSION:** The results of this work indicate that AR might be a better approach for MVF than VR and MB. Further studies are needed before AR can be applied as a treatment for CRPS patients.

## POSTER 17

## Validity and reliability of the Swedish version of the Patient Specific Functional Scale in patients treated surgically for thumb osteoarthritis

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**BACKGROUND:** Patient Specific Functional Scale, PSFS, is a questionnaire aiming at specifically eliciting and recording patients' problems. The Swedish version is not yet evaluated. The aim of this study was to describe construct validity and test-retest reliability of the Swedish version of PSFS when used on patients treated surgically for thumb osteoarthritis.

**MATERIAL AND METHODS:** 28 patients were included in the study, 6 men and 22 women. To describe construct validity; joint movement of the thumb, pain, grip strength and pinch strength, were assessed. The following questionnaires were also used; PSFS, Quick DASH and EQ-5D. To describe test-retest reliability PSFS was administered again after 2-3 days.

**RESULTS:** Good correlations were obtained with pain at rest ( $r_s = -0.55$ ) and grip strength ( $r_s = 0.40$ ). Correlations with Quick DASH ( $r_s = -0.36$ ) and pain at assessment of pinch strength ( $r_s = -0.35$ ) were moderate. Correlations with pinch strength ( $r_s = 0.20$ ), EQ5D ( $r_s = 0.20$ ) and joint movement of the thumb ( $r_s = 0.12$ – $0.20$ ) were low. Test-retest reliability was good to moderate, ICC (0.80), repeatability coefficient (2.47) and ME (1.56) and Kappa coefficient ( $k = 0.58$ ) and weighted Kappa coefficient ( $k = 0.72$ ) without systematic differences ( $p = 0.75$ ).

**DISCUSSION/CONCLUSION:** The result indicates that the Swedish PSFS has good to moderate construct validity and good to moderate reliability.