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Abstract

Implementation of virtual reality in the rehabilitation of patients suffering from axial spondyloarthritis

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Abstract

Introduction (including aim): Axial spondyloarthritis (axSpA) is a chronic inflammatory and rheumatic disease that causes inflammation and structural changes to the skeleton. Patients with axSpA suffer from neck pain and stiffness and have severe and permanent restrictions in movement. Patients are advised to carry out prescribed exercises to maintain mobility, but most do not comply with this advice due to the unnatural nature of head and neck stretching exercises. Clinicians currently only test cervical rotation of patients with axSpA a few times per year. Pain and stiffness can fluctuate between appointments, and there is a need to accurately measure the patient's spinal mobility at home.

Methods: Virtual Reality (VR) headsets have been proven to be accurate and reliable when measuring neck movement. We are using VR to aid relaxation and promote mindfulness, whilst moving the participant's head to visual and auditory cues to enable completion of exercises. In this ongoing study, we are testing whether a smartphone-enabled VR system could be feasible for the measurement of cervical movement at home.

Results: The ongoing research will have a positive impact on the lives of patients suffering from axSpA. Regular measurement and assessment of spinal mobility at home will be beneficial to patients and clinicians for objective mobility measurement.

Discussion: Implementing VR as both a distractive and rehabilitation encouragement technique could improve patient engagement whilst simultaneously collecting granular mobility data. Additionally, implementing VR rehabilitation using smartphone technology will offer an inexpensive method of exercise and effective rehabilitation.