

PREPRINT

RESPONSIVENESS OF KINEMATIC ANALYSIS WITH A MOTION CAPTURE CAMERA SYSTEM IN AXIAL SPONDYLOARTHRITIS: A PROTOCOL STUDY

Background: The aim of this study is to document the responsiveness of the motion capture depth camera through functional tests and Timed Up and Go test. Depth camera will be compared with the kinematic analysis of a smartphone and specific questionnaires for this pathology through a correlation between them. **Methods:** This study is a prospective study and will be conducted following the COSMIN Responsiveness rules for reporting. Ten subjects (18-65 years) will perform the test in front of a depth camera. Subjects who started a pharmacological treatment will be excluded. The gold standard will be the smartphone placed on the chest. Functional tests are Climbing stairs, Bending, Reaching, Putting on sock, Getting up from the floor and Reclining and declining from a chair. These tests and Timed Up and Go test will be measured 2 times: during the first visit and 4 weeks later. Subjects will perform all repetitions as quickly as possible it is the goal to finish each test safely in 30 seconds. Receiver operating characteristic curves will calculate to evaluate the level of responsiveness of the depth camera compared to the kinematic variables of the smartphone. The correlation between the measurements pre-post intervention and between the depth camera with spondyloarthritis questionnaires will be analysed by the Pearson Correlation Coefficient. **Discussion:** Analysing mobility and function is important and necessary in this pathology, documenting the impact of Axial Spondyloarthritis. A study using a motion capture system with Axial Spondyloarthritis patients has not been found. Previous studies suggest that this study will measure the reliability of the depth camera and its capacity to identify potential changes after an intervention. The use of a motion capture camera system is proposed as a new examination tool to improve the assessment and the effectiveness of the treatment in axial spondyloarthritis.