It was found that, the Microsoft Kinect V1 with Brekel Kinect software was generally able to track lower limb sagittal plane motion and produce representative gait traces with a varying accuracy, which makes insufficiently accurate for clinical use.

The Kinect did not produce consistent hip measurements, but knee measurements were better correlated compared to Vicon however neither are consistent enough for clinical applications. Kinect and Vicon stride timing measurements were often well correlated and with some slight adjustments to the software the Kinect may be a clinically acceptable tool to collect temporal gait measurements.

The proposed system proves it self to be time-efficient compared to other automated systems. Having no need for a large amount of data, makes it practical for clinical usage. The accuracy is considerably high, which indicates the system can assess upper – limb motor function in a manner like a clinician’s. The inaccuracy of T5 and T14 were caused by the low precision of thumb tracking of Kinect v2’s with SDK 2.0. Moreover, the contracture results in inaccurate measurement of the hand open/close state by Kinect (T18 and T19). Some of the other inaccuracies can be overcome by simple adjustments like wearing tight clothes etc. The extremely high correlation between the total score of the automated FMA tests and that of the in-person FMA tests indicates that the proposed system can adequately estimate complete FMA scores despite a few unautomated FMA tests. This study proposed an automated FMA system for upper extremity motor function assessment in stroke patients. For developing a clinically relevant system, 79% of the FMA tests were automated through optimized sensor selection, and approximately 90% scoring accuracy was achieved by employing a rule-based binary logic classification algorithm without learning procedures. The proposed system can reduce a clinician’s required time for the FMA by more than 85%, which would contribute to frequent evaluation of upperlimb motor function and improvement in upper-limb intervention for rehabilitation.

F.

In this article they observed a good to excellent agreement between the two motion-registration systems for raw data, spatiotemporal gait parameters and time to walk 10 meters. However, with a small range of motion, the noisier Kinect v2 data may have caused the error-variances of the two motion-registration systems to differ, with consequently a lower between-systems agreement. Previous study about Kinect v1 using in Parkinson’s Disease assessment also proved that small movements such as hand-clasping, toe tapping is hard to detect spatially.