**SUPPLEMENTARY MATERIAL**

Supplementary Fig. 1: Structural problems in Leap Motion assessments.

Supplementary Fig. 2: Measurement problems in Leap Motion assessments.



**Supplementary Fig. 1. Structural problems in Leap Motion assessments**

The metacarpophalangeal joints seem to show a maximum flexion angle which decreases per finger with the largest maximum flexion angle for the index finger and the smallest angle for the little finger. This decrease was seen in both healthy controls (HC; black) and Duchenne muscular dystrophy (DMD) patients (red).



**Supplementary Fig. 2. Measurement problems in Leap Motion assessments**

In black-and-white the depth images from the screen recordings are shown and next to this is the registered hand model at the same time. The graphs present resulting angles over the time-period of the measurement. (A) Wrist flexion/extension is performed at test and retest by a DMD patient, showing that the forearm moves with the hand in the hand model, while it is kept still in reality and the wrist itself only flexes or extends a small amount. This is more extreme in the retest assessment and leads to very low wrist flexion and extension angles. This retest assessment was excluded because no representative complete movements with a peak and dip could be recognized. (B) Supination angles of a HC are 68 degrees lower at pronation/supination retest compared to the 1st test, due to incorrect measurement of the elbow position during retest.