The goal of this pilot study was to assess the accuracy of a model-based human motion measuring system. We compared motion capture data from a model-based system with those from a marker-based system. A simple reach task involving the left shoulder, upper arm and lower arm was used for the comparison in two subjects. The results revealed various errors in the model-based system. The modelled movements for the upper arm and lower arm laid within the standard error for most of the motion sequences of the marker-based system. The modelled end positions deviated from the actual motion sequence in Y and Z direction with 17 and 23.