

KA Data Review Check List

Data Preparation:

Verify that Scale factor is correct – check the approximate height of performer on both front and side views. In KA2D, select the shoulder point and advance the stick figure to a frame when the performer is standing upright. Inspect the Y value of the shoulder point (this measure is expressed in meters). If the shoulder height above the floor is greater than 2 meters or less than 1 meter, it is likely that your scale factor value is incorrect. To correct the scale factor, run KAVideo, select the ReDG option and then select the “ReDigitize Scale” option.

Verify that events are entered properly (side view is most important). In KA2D, the velocity curve should show vertical green lines on the time axis that identify the frame when each event occurs.

Check for digitizing errors with zero smoothing – any point that has a velocity spike (change in velocity over $1/60^{\text{th}}$ second) of 2 mps should be re-digitized (the exceptions to this rule are: 1) points with expected sudden changes in velocity (a ball at impact) and 2) points whose motion is not well isolated in the given view when the spike occurs – this happens often in the front view when the point is moving “out of the front view plane”.

If you have 3D data, verify that the 3D creation process shows good synchronization. The hills and valleys of the final red and blue curves should be close together.

Data Analysis:

What differences are expected? What differences are found? If the difference is small, do not exaggerate. It is OK to have unexpected differences.

Stay away from angular acceleration. Stay away from linear acceleration as well – except for body CG acceleration X, Y, Z components which should be used for force calculations.

Do not report GRF data on the Toe Off or Foot Down events. Forces that occur just when the foot is about to leave or touch the ground are going to be very small and uninteresting. Instead report peak force values. If you want to report more information about force, compute the impulse generated during a given phase of motion.

After you identify each interesting difference **you must explain it** – what is its importance? – how does it affect the outcome of the movement?

What biomechanical principles are important in the analysis of this movement? How does the performer’s movement data reflect these principles?

Do not use the word “significant” in a scientific paper unless you are referring to “statistically **significant** differences”. Note: You cannot generally compute statistical significance unless you have 10 or more trials of data. Because this will never happen in a kin 485 paper, you should never use the word significant.

Graphics:

Each of your paper’s main points must be illustrated with at least one vector based graphic figure. This figure must include video images, stick figures, KA data, text based additions and highlights. See the PowerPoint guide chapter in your reader.