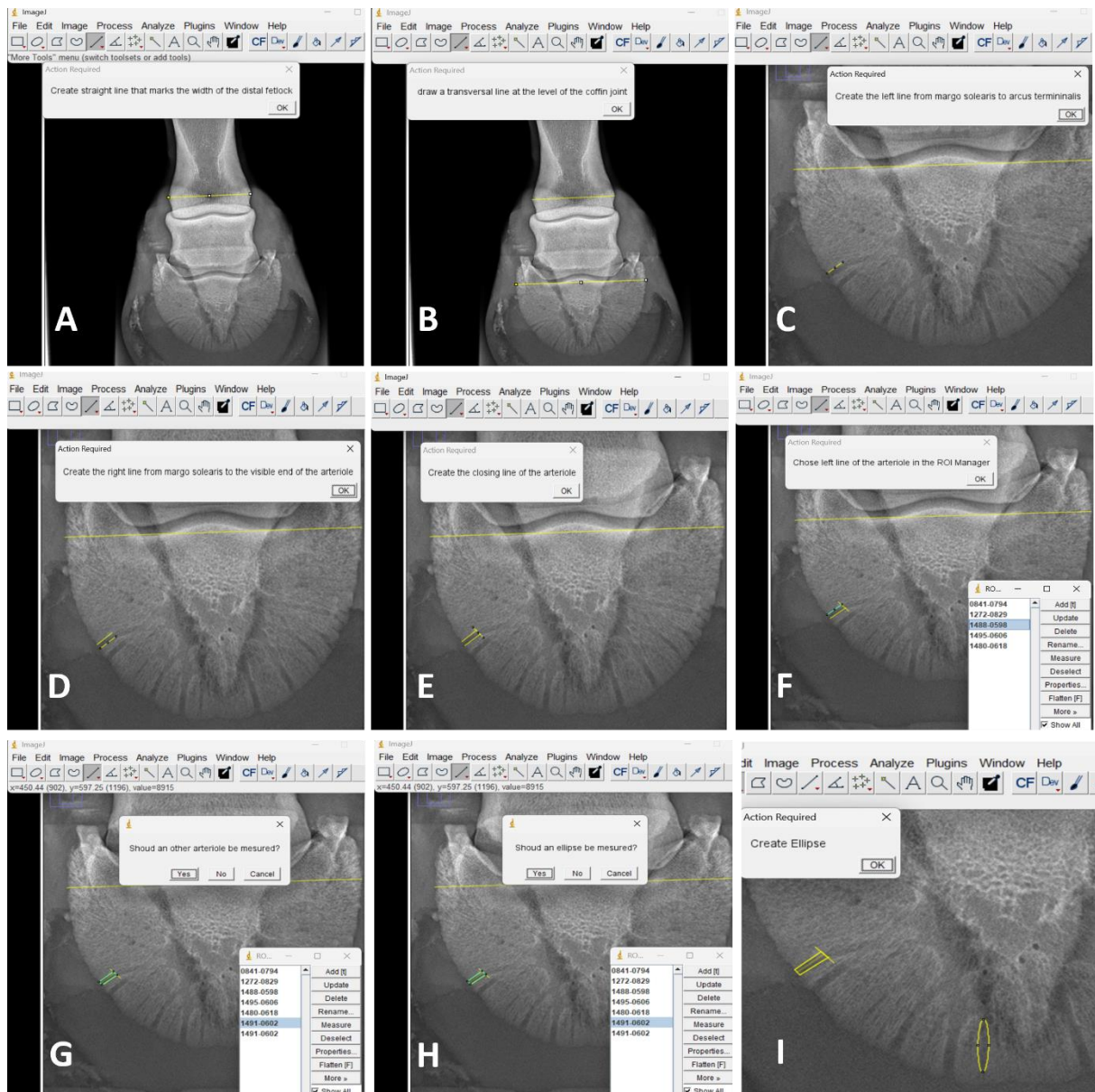


## Supplementary Figure S1

### “Arteries Analyzer/ImageJ”

(<https://github.com/reiservalentina/Arteries-Analyzer-ImageJ-Plugin>)



**Figure A**

After scaling using a straight line, a straight line is drawn between the lateral and the medial fovea ligamentaria of the phalanx proximalis for size normalization identified as b (proximal pastern).

**Figure B**

The next step is to place a transversal (lateromedial) reference line (x) at the level of the coffin joint by connecting the most distal contours of the medial and lateral half of the joint surface within the distal phalanx.

**Figure C**

The first straight line of the first visible arterial channel is drawn manually starting from the visible end of the arterial channel at the margo solearis towards the arcus terminalis. This line is drawn as far as the border of the artery is clearly discernible.

**Figure D**

The the second straight line of the first visible arterial channel is drawn starting from the visible end of the artery at the margo solearis towards the arcus terminalis. This line is drawn as far as the border of the artery is clearly discernible.

**Figure E**

A line connecting the proximal ends of the previous two lines is drawn.

**Figure F**

The “Arteries Analyzer” requests the user to choose the left (border) line in the ROI Manager of the five lines drawn previously.

**Figure G**

After this artery channel is analyzed, the user is asked whether another artery should be measured.

**Figure H**

If no other artery is to be measured, the user is asked whether an ellipse should be measured.

**Figure I**

If yes, the ellipse is outlined similar to the arteries by placing and shaping an ellipse congruent to the radiolucent area using the shape selection tool of imageJ.

The results of the two measurements above are for the artery angle  $31.3154^\circ$ , opening angle  $1.5004^\circ$ , length 13.1339mm, width 4.4606mm, area  $58.5848\text{mm}^2$ , and for the ellipse main 18.6173mm, minor axis 3.0294mm, area  $44.2958\text{mm}^2$ .