Running Victoria Hand Project Scoliosis Software

WALKTHROUGH FOR TESTING

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Introduction and Running

The following are detailed instructions on how to use the Scoliosis Brace Designer Software created by the Victoria Hand Project. If you have not installed the software yet, please see the **'Scoliosis-Software-Installation-Guide'** document.

1) Open Fusion 360 – Wait for this to be fully loaded before continuing.

2) Click on the VHP shortcut to run the BraceDesigner.exe executable.

3) A default brace should appear on the Fusion 360 screen. Move both screens to be side by side so you can see the UI (left in image below) and the default brace for preview (right in image below).

Login, Homepage and Step 1 of 8 (Initial Information)

4) Click '**Log In**' (no email address or password required for testing purposes) and then click '**New Brace**' on the Home Page. For Demo purposes, on Step 1 of 8 the only mandatory field is **'Units of Measurement'**. Select Metric (cm) or Imperial (inches) from the dropdown menu.

5) Click the [>] button to advance to the fitting sheet pages.

Step 2 of 8 (Front Measurements)

6) Enter the dimensions of the brace you would like to generate. At this time, the software **DOES NOT** require the circumference measurements. The software DOES require Medial-Lateral, Anterior-Posterior and Superior-Inferior measurements. To generate a preview on the Fusion screen, press the '**Update Brace**' button. You may need to wait approximately 5 minutes to see your changes reflected on the Fusion screen. *****PLEASE MAKE SURE TO CLICK <u>UPDATE BRACE</u> BEFORE ADVANCING TO THE NEXT PAGE*****

You will see a popup in the User Interface. You may close this anytime by clicking **'Close'**
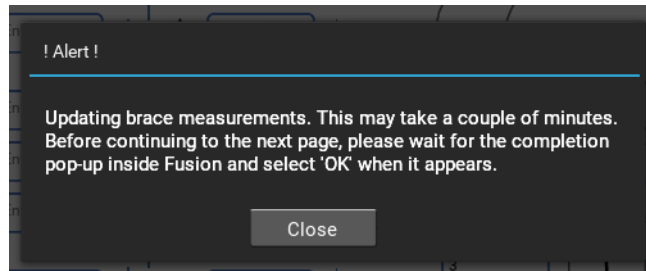
You will see a popup on the Fusion 360 screen when the model is finished updating. You may close this by clicking 'OK'.
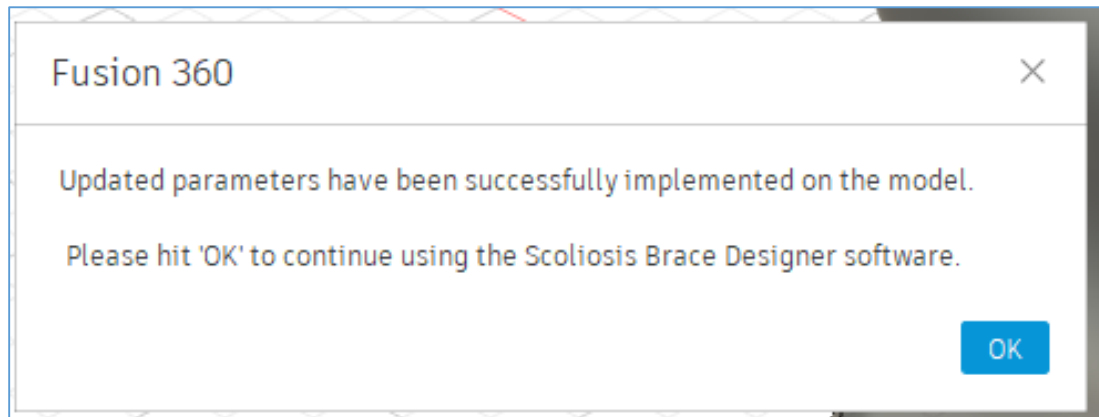
After the brace is updated, and **after you have closed the popup on the Fusion 360**

screen, you may continue to the next screen by pressing in the User Interface.

Step 3 of 8 (XRay Overlay - Optional)

7) Follow the instructions to insert an XRay (Optional). Scroll using the blue bar on the

right, or your mouse. If you do not have an XRay, continue to the next page .

XRay Overlay (Optional)   Step 3 of 8

If you have an XRay of the patient that you would like to overlay on the 3D model, please follow the instructions below to insert it as a .jpg or .png file.

If you do not have an XRay, please proceed to the next page.

XRay Insertion Instructions

Step 1: On the Fusion 360 Screen where you can see the brace, click on the picture titled 'Insert' in the top right corner.

Step 4 of 8 (Medial / Lateral Shift - Optional)

8) If there are any medial/lateral shifts you would like to make, either enter the number in the input box or turn the slider on the desired level 'on' and then use the buttons to shift. If no medial/lateral shifts, continue to the next page. If you have entered changes, click '**Update Brace'** when complete. **After you have closed the popup on the Fusion 360 screen**, you may continue to the next screen by pressing in the User Interface.
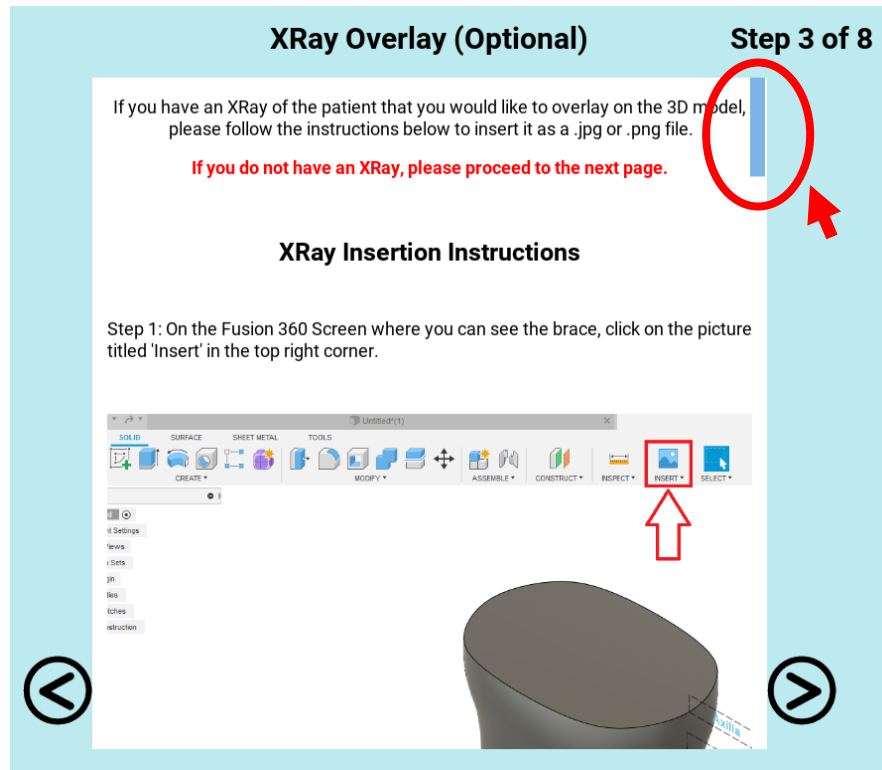
X-Ray View Toggle

XRay ON

Scoliosis Brace Fitting Sheet

Medial / Lateral Shift

Step 4 of 8

Anterior View

Axilla — OFF — Shift Amount

Chest — OFF — Shift Amount

Xyphoid — OFF — Shift Amount

Lower Rib — ON — 2.0

Waist — OFF — Shift Amount

ASIS — OFF — Shift Amount

Greater Trochanter — OFF — Shift Amount
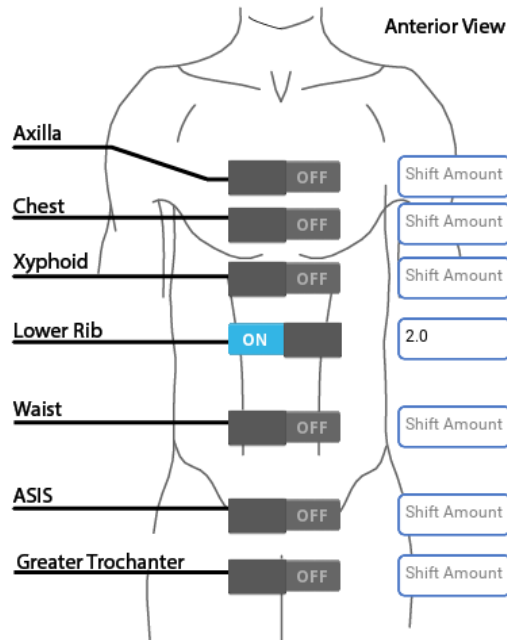
Shift Medial / Lateral
(- to shift left, + to shift right)

-10 | -1 | +1 | +10

$-$ $+$

All adjustments in mm

Reset Values

Update Brace

Step 5 of 8 (Anterior / Posterior Shift - Optional)

9) If there are any anterior/posterior shifts you would like to make, either enter the number in the input box or turn the slider on the desired level 'on' and then use the buttons to shift. If no anterior/posterior shifts, continue to the next page ⊜. If you have entered changes, click '**Update Brace**' when complete. **After you have closed the popup on the Fusion 360 screen**, you may continue to the next screen by pressing ⊜ in the User Interface.

XRay ON

Anterior / Posterior Shift

Lateral View

Axilla — OFF — Shift Amount

Chest — OFF — Shift Amount

Xyphoid — ON — 4.0

Lower Rib — OFF — Shift Amount

Waist — OFF — Shift Amount

ASIS — OFF — Shift Amount

Greater Trochanter — OFF — Shift Amount

Shift Anterior / Posterior
(- to shift backwards, + to shift forwards)

| -10 | -1 | +1 | +10 |

$-$ $+$

All adjustments in mm

Reset Values

Update Brace

Step 6 of 8 (Twist Adjustment - Optional)

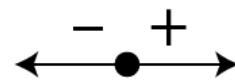10) If there are any levels you would like to see rotated, either enter the number in the input box or turn the slider on the desired level 'on' and then use the buttons to shift. If no rotations, continue to the next page . If you have entered changes, click '**Update Brace**' when complete. **After you have closed the popup on the Fusion 360 screen**, you may continue to the next screen by pressing in the User Interface.

Anterior View

Axilla
OFF — Rotation Amount

Chest
OFF — Rotation Amount

Xyphoid
OFF — Rotation Amount

Lower Rib
ON — 3

Waist
ON — -4

ASIS
OFF — Rotation Amount

Greater Trochanter
OFF — Rotation Amount

Rotate
(- counter-clockwise, + clockwise)

-5° -1° 1° 5°

− +

Reset Values

Update Brace

Step 7 of 8 (Back Measurements)

11) Fill out dimensions for waist reduction and Velcro slots. For Demo purposes, the required fields are shown below in red. When complete, press the '**Update Brace**' button. **After you have closed the popup on the Fusion 360 screen**, you may continue

to the next screen by pressing in the User Interface.

Back Measurements

Please fill out ALL required fields

Iliac Crest Reduction

Posterior View

Iliac Crest Reduction

Velcro Levels
to Waist Level

Upper

Enter # (cm)

Spine of Scapula

Enter # (cm)

Middle

Enter # (cm)

Waist Level

Enter # (cm)

Lower

Enter # (cm)

Waist Reduction
Horizontal Radius

Reduced Waist

Enter # (cm)

L4 Level

Enter # (cm)

Distance Between ASIS

Enter # (cm)

Gluteal Fold Level

Update Brace

Step 8 of 8 (Side Measurements)

12) Fill out dimensions for the abdominal reduction. Both fields are required. When complete, press the '**Update Brace**' button. **After you have closed the popup on the**

Fusion 360 screen, you may continue to the next screen by pressing ⊙ in the User Interface.
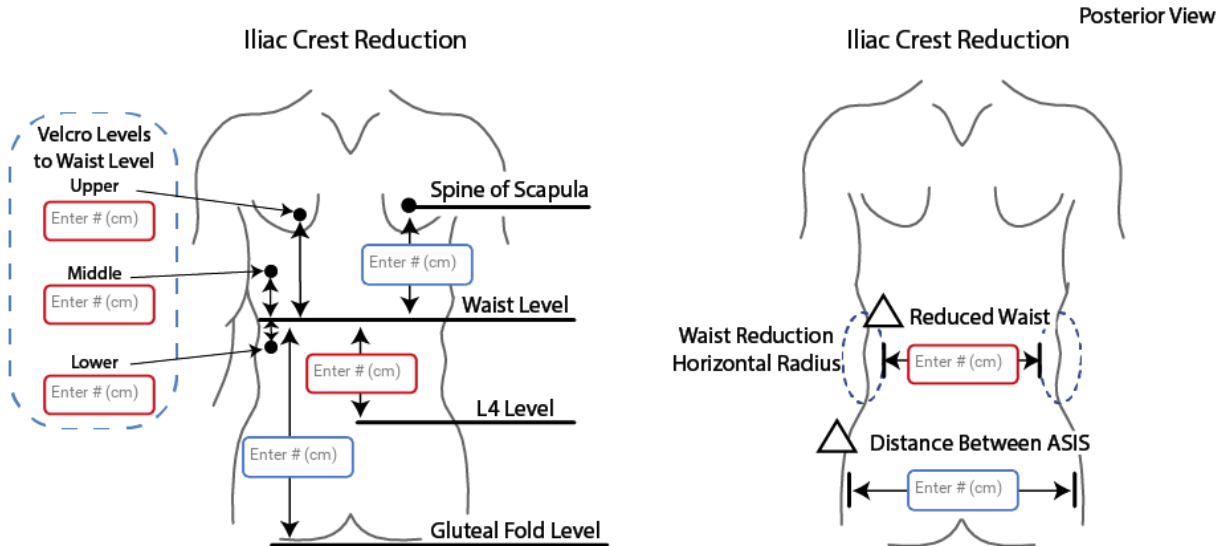
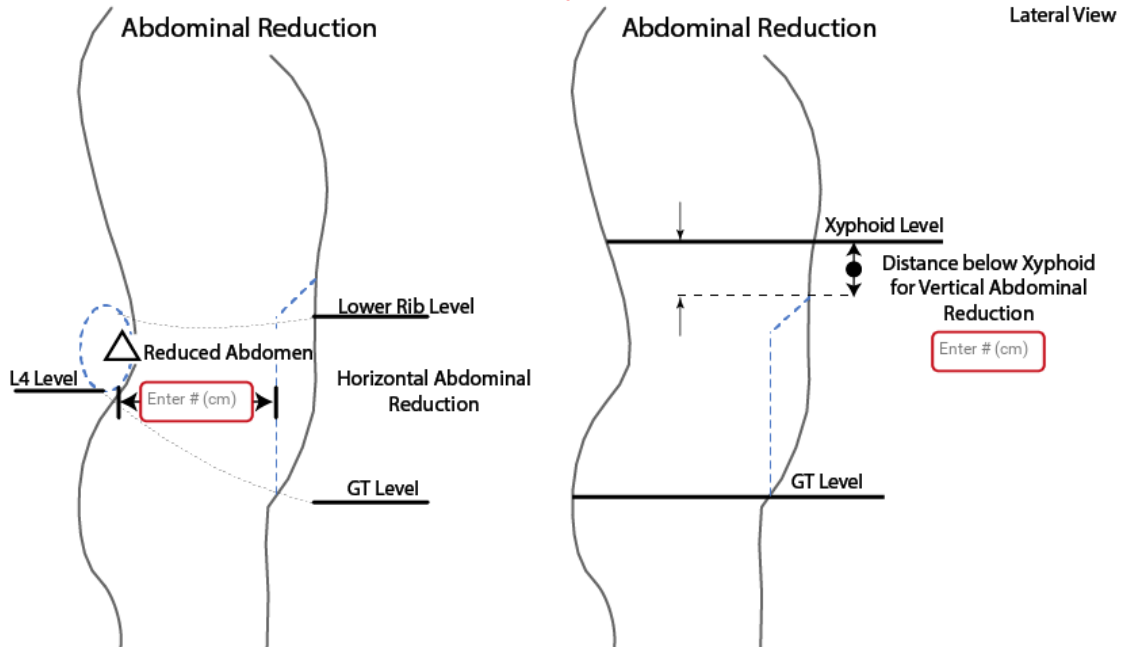### Review and Final Export Settings

13) All values can be reviewed here. If everything looks correct, click '**Confirm Brace Measurements'**.

Scoliosis Brace Fitting Sheet
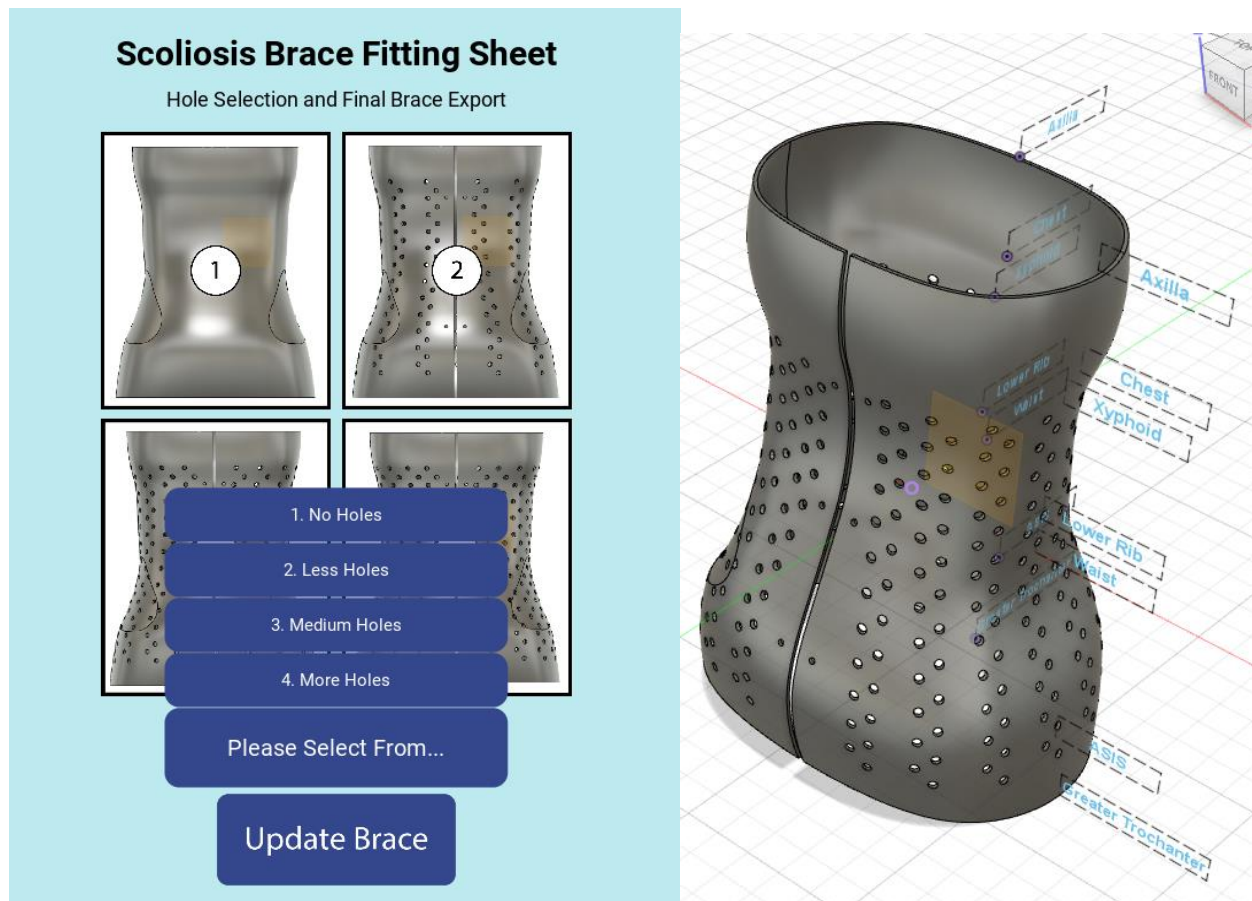
Review and Confirm Information.
NOTE: When you confirm these measurements you will not be able to edit them anymore.
The next stages will create the brace shell.

AP Axilla: 0
ML Axilla: 0
Axilla Circ.: 0
AP Chest: 0
ML Chest: 0
Chest Circ.: 0
AP Xyphoid: 0
ML Xyphoid: 0
Xyphoid Circ.: 0
AP Lower Ribs: 0
ML Lower Ribs: 0
Lower Rib Circ.: 0
AP Waist: 0
ML Waist: 0
Waist Circ.: 0

AP ASIS: 0
ML ASIS: 0
ASIS Circ.: 0
AP GT: 0
ML GT: 0
GT Circ.: 0
Sternal Notch to Waist: 0
Axilla to Waist: 0
Chest to Waist: 0
Xyphoid to Waist: 0
Lower Rib to Waist: 0
Waist to ASIS: 0
Waist to GT: 0
Upper Velcro: 0
Middle Velcro: 0

Lower Velcro: 0
L4 to Waist: 0
Gluteal Fold to Waist:
Scapula to Waist:
ML Finished Waist: 0
ASIS Distance:
AP Finished Waist: 0
Reduction Below Xyphoid: 0
Axilla Shift X:
Chest Shift X:
Xyphoid Shift X:
Rib Shift X: 2.0
Waist Shift X:
ASIS Shift X:
GT Shift X:

Axilla Shift Y:
Chest Shift Y:
Xyphoid Shift Y: 4.0
Rib Shift Y:
Waist Shift Y:
ASIS Shift Y:
GT Shift Y:
Axilla Rotation:
Chest Rotation:
Xyphoid Rotation:
Rib Rotation: 3
Waist Rotation: -4
ASIS Rotation:
GT Rotation:

Confirm Brace Measurements

14) Select the amount of holes (breathability, comfort) you would like in the scoliosis brace using the dropdown menu. Click '**Update Brace'.** This may take a few minutes.

Scoliosis Brace Fitting Sheet

Hole Selection and Final Brace Export

1

2

1. No Holes

2. Less Holes

3. Medium Holes

4. More Holes

Please Select From...

Update Brace

15) Click **'Create Brace Shell'** to export an .stl file for 3D printing and a .csv file to reload into this program in case you want to make changes later. Please wait for the confirmation pop-up in Fusion before closing the program. **Once you have closed the confirmation pop-up** in the Fusion 360 screen, you may close all other screens. The brace has been created.

Fusion 360   ✕

.csv and .stl files have successfully exported.

Please hit 'OK' on this pop-up. You can now close Fusion and the Scoliosis Brace Designer software.

OK