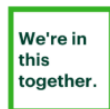


# Running Scoliosis Brace Designer Software



Powered By...



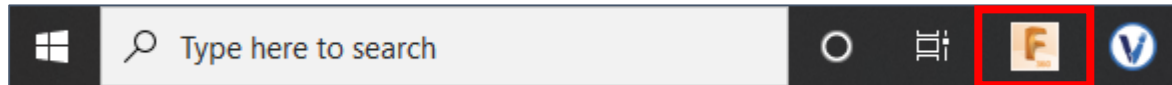
March 30<sup>th</sup>, 2021

Prepared by Kelly Knights

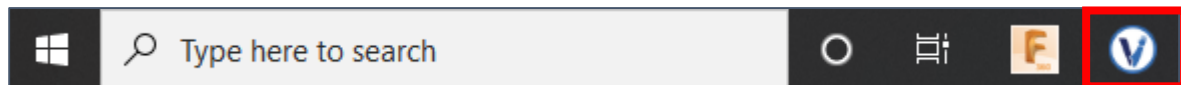
Revised by: Maggie Robinson

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 **'Installing-Scoliosis-Software'** document.

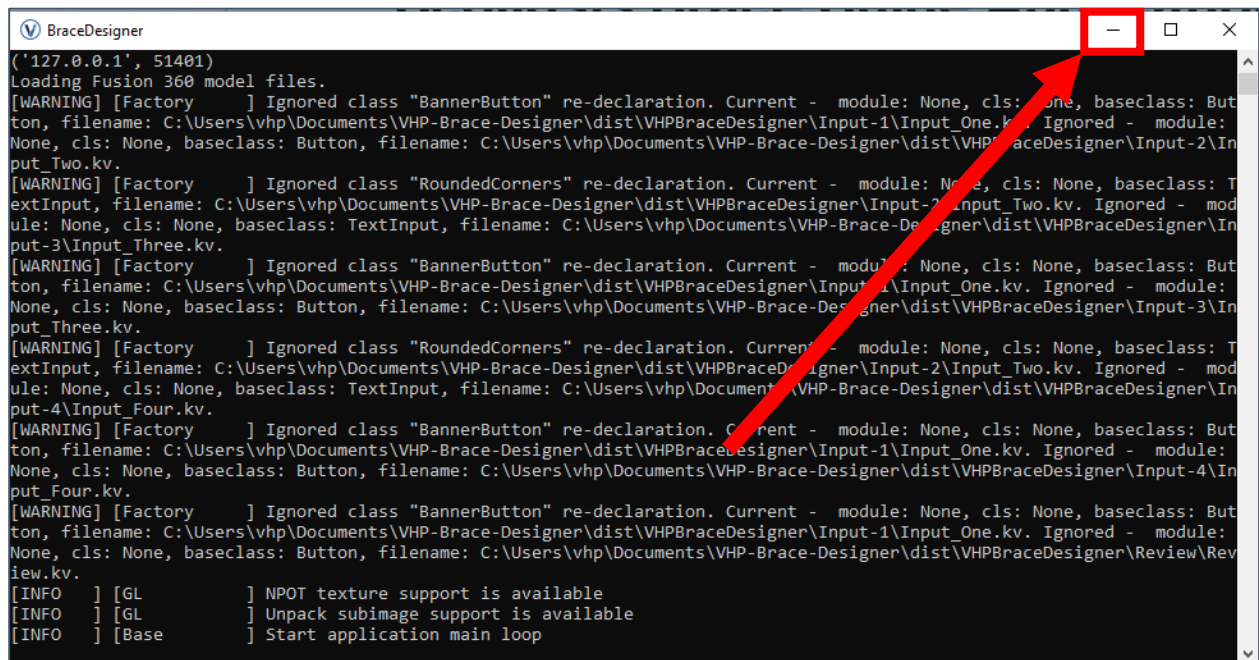
- 1) Open Fusion 360 – Wait for this to be fully loaded before continuing.



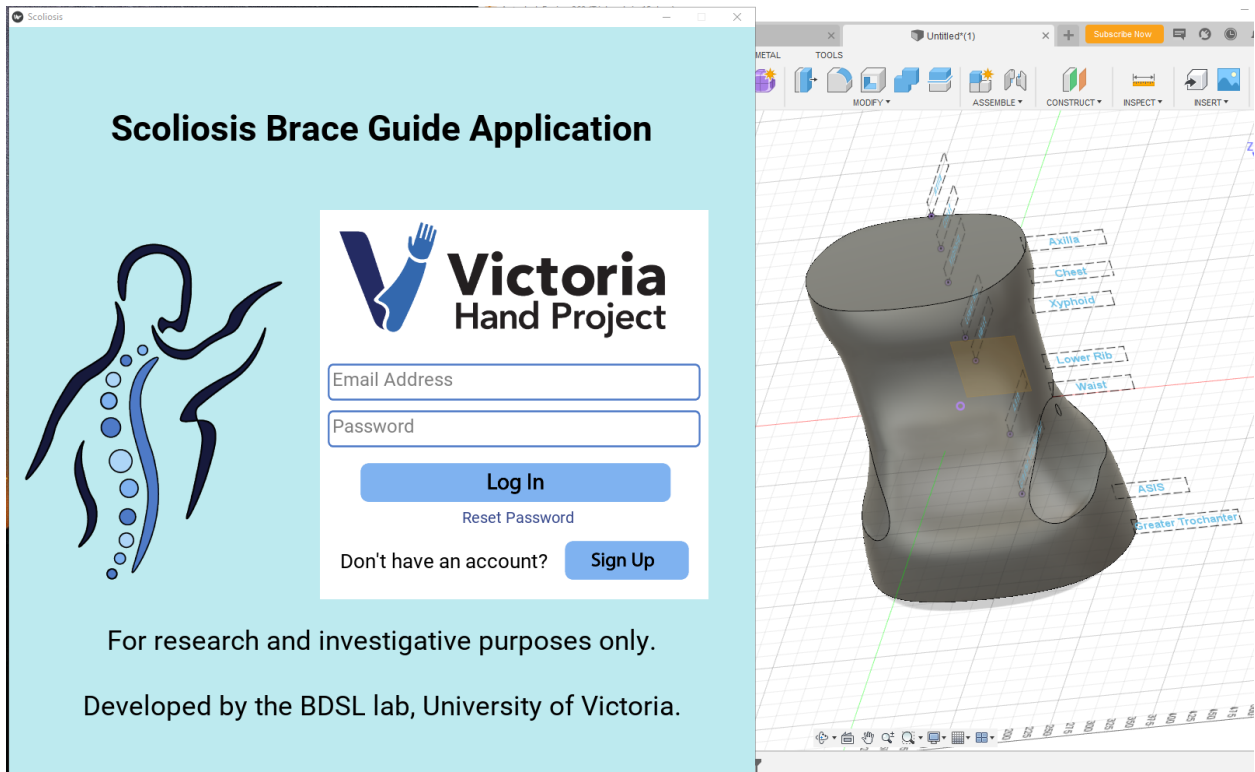
- 2) Click on the VHP shortcut to run the VHPBraceDesigner.exe executable.



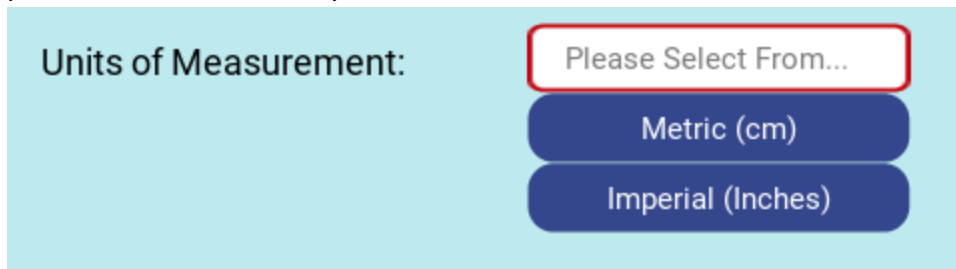
- 3) A dark command screen will appear, as well as the main user interface (UI). Please MINIMIZE the command prompt (do not close it).




- 4) 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).



- 5) Click '**Log In**' and then '**New Brace**'. For Demo purposes, you can skip entering the patient information, but you must choose the Units of Measurement.



Click the  button to advance to the next steps.

- 6) Enter the Front Measurements 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 UPDATE BRACE BEFORE ADVANCING TO THE NEXT PAGE\*\*\***

## Scoliosis Brace Fitting Sheet

### Step 2 of 8

Front Measurements

\*\*\*Please fill out ALL required fields\*\*\*

**Circumference**

☐ Enter # (in)

☐ Enter # (in)

☐ Enter # (in)

☐ Enter # (in)

☐ Enter # (in)

☐ Enter # (in)

☐ Enter # (in)

**Medial / Lateral**

☐ Enter # (in)

☐ Enter # (in)

☐ Enter # (in)

☐ Enter # (in)

☐ Enter # (in)

☐ Enter # (in)

☐ Enter # (in)

**Anterior / Posterior**

☐ Enter # (in)

☐ Enter # (in)

☐ Enter # (in)

☐ Enter # (in)

☐ Enter # (in)

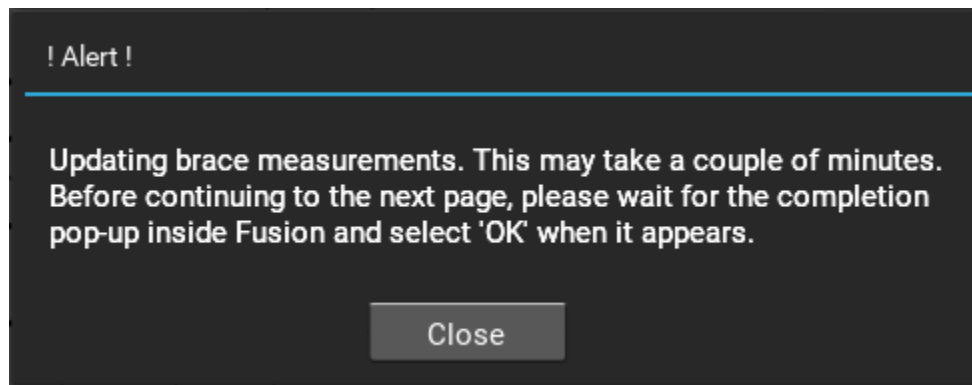
☐ Enter # (in)

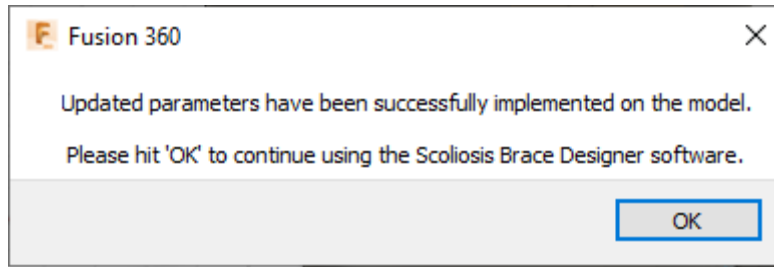
☐ Enter # (in)

Anterior View

Update Brace

After the Update Brace button has been pressed a pop up will appear in the UI (first image below) reminding you to wait for a pop up in Fusion. The pop up in Fusion will appear when the changes have been implemented and it is safe to proceed (second image below). Click “Ok” in Fusion, and “Close” in the UI.





- 7) The next page (Step 3) will provide you with instructions on how to overlay an X-Ray image (optional). Scroll through these instructions if an X-Ray overlay is desired.

### 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.

⏪
⏩

- 8) The next 3 pages (Step 4,5,6) will allow twists and shifts (Medial/Lateral Shift, Anterior/Posterior Shift, Twist Adjustment). To twist/shift toggle on the desired level and then enter the desired value, or use the quick measurement buttons to change all toggled measurements. **Be sure to press Update Brace once the values have been entered.**

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, Shift Amount:

Waist: OFF, Shift Amount:

ASIS: OFF, Shift Amount:

Greater Trochanter: OFF, Shift Amount:

Shift Medial / Lateral  
(- to shift left, + to shift right)

-1/2
-0.1
+0.1
+1/2

-                      +

←           ●           →

**All adjustments in inches**

Reset Values

⏪

Update Brace

⏩

- 9) Click the ⏩ button to advance to Step 7 (Back Measurements). Velcro Levels to Waist Level (upper, middle, lower), L4 to Waist Level, and Reduced Waist are required. **Be sure to press Update Brace once the values have been entered.**

X-Ray View Toggle

XRay ON

## Scoliosis Brace Fitting Sheet

Back Measurements

\*\*\*Please fill out ALL required fields\*\*\*

Step 7 of 8

Iliac Crest Reduction

Iliac Crest Reduction Posterior View

⏪

Update Brace

⏩

- 10) Click the ⏩ button to advance to the next page (Side Measurements). At this time, all fields are mandatory. **Be sure to press Update Brace once the values have been entered.** This update should be close to instantaneous on Fusion.

X-Ray View Toggle  
XRay ON

## Scoliosis Brace Fitting Sheet

Side Measurements

\*\*\*Please fill out ALL required fields\*\*\*

Step 8 of 8

Abdominal Reduction

Lower Rib Level

Horizontal Abdominal Reduction

GT Level

L4 Level

Reduced Abdomen

Enter # (in)

Abdominal Reduction

Xyphoid Level

Distance below Xyphoid for Vertical Abdominal Reduction

Enter # (in)


GT Level

Lateral View

<

Update Brace

>

- 11) Click the  button to advance to the next page. You are able to review the values you entered on this page. Click '**Confirm Brace Measurements**' then advance to the next page.



## 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: 12  
ML Axilla: 13.5  
Axilla Circ.:  
AP Chest: 12.5  
ML Chest: 14  
Chest Circ.:  
AP Xyphoid: 10  
ML Xyphoid: 12.5  
Xyphoid Circ.:  
AP Lower Ribs: 10  
ML Lower Ribs: 13.2  
Lower Rib Circ.:  
AP Waist: 9  
ML Waist: 13  
Waist Circ.:

AP ASIS: 12  
ML ASIS: 14  
ASIS Circ.:  
AP GT: 13  
ML GT: 14.5  
GT Circ.:  
Sternal Notch to Waist: 13  
Axilla to Waist: 11  
Chest to Waist: 9  
Xyphoid to Waist: 6  
Lower Rib to Waist: 4  
Waist to ASIS: 3  
Waist to GT: 6  
Upper Velcro: 5  
Middle Velcro: 3

Lower Velcro: 2  
L4 to Waist: 3  
Gluteal Fold to Waist: 7  
Scapula to Waist: 2  
ML Finished Waist: 11  
ASIS Distance: 20  
AP Finished Waist: 8.5  
Reduction Below Xyphoid: 2  
Axilla Shift X: -0.1  
Chest Shift X: -0.1  
Xyphoid Shift X: -0.1  
Rib Shift X: 0.0  
Waist Shift X: 0.0  
ASIS Shift X: 0.0  
GT Shift X: -0.1

Axilla Shift Y: -0.3  
Chest Shift Y: -0.2  
Xyphoid Shift Y: -0.1  
Rib Shift Y: 0.0  
Waist Shift Y: -0.3  
ASIS Shift Y: -0.5  
GT Shift Y: -0.1  
Axilla Rotation: -1  
Chest Rotation:  
Xyphoid Rotation: -5  
Rib Rotation:  
Waist Rotation:  
ASIS Rotation:  
GT Rotation:

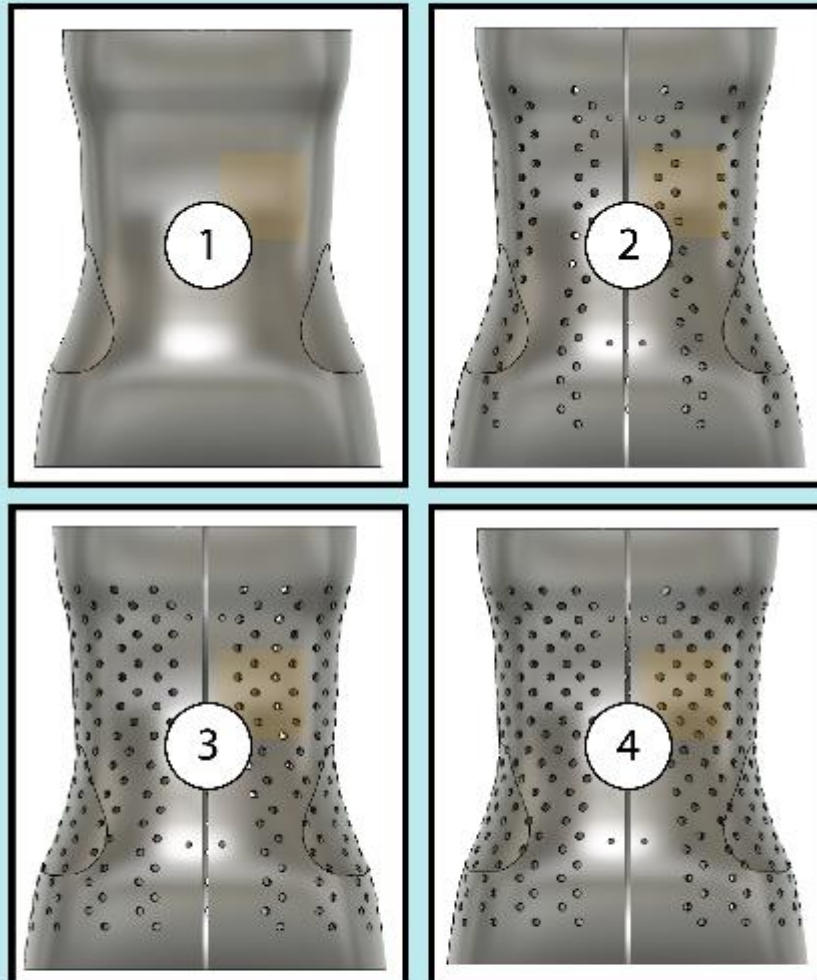
**Confirm Brace  
Measurements**



- 12) The final step is to choose the desired hole pattern and export the final brace. Once a hole type is chosen you cannot make any further changes or return to previous steps. Chose the hole type from the drop down menu then click '**Update Brace**'.


## Scoliosis Brace Fitting Sheet

Hole Selection and Final Brace Export



Please Select From...

Update Brace

- 13) Click the  button then click 'Create Brace Shell' to save a .csv and .stl file for reference later. Name the file and click 'Save' **Be sure not to exit the UI until the pop up has appeared in Fusion.**



- 14) You are done! Your custom brace has been generated. Thank you very much for your time, and we look forward to hearing your feedback.