

VHD Jumpstart: Introduction to the Thorax

Sectra Table Version

NOTE: If you are not using the Sectra Table, return to the previous page and select the Touch or Non-Touch Version.



1 Start by setting the screen view

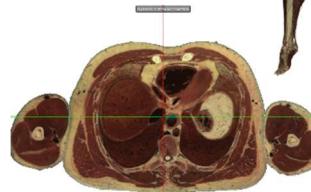
- Hide or unhide the Lessons Pane by tapping the “View” icon and then tapping on the “Lessons” icon.
- Double-tap on the transverse cross-section to enlarge it.



2 Set a cross-section of the thorax

- Add a transverse cross-section to the 3D model.
- Tap on the “Cross-Section” icon and select “Transverse” and “Color”. *On the Toltech Table, anatomic cross-sections are the default option.*
- Tap on the Cross-Section icon or one of the main panels to close the window.
- Using three fingers, slide up and down over the transverse cross-section image. Scroll to the middle of the chest.
- Explore the anatomy of the thorax by tapping the “Rotate” icon and the “Highlight” tool. Drag one finger over structures of interest to see their labels.
- Note: structures are identified at the top of the cross-section area.

Use one finger to highlight structures.
Use two fingers to zoom and move the model.
Use one finger to scroll through slices.



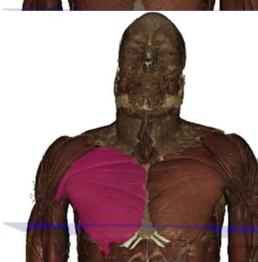
3 Magnify the 3D model pane

- Using two fingers, zoom out and translate the position of the 3D model.

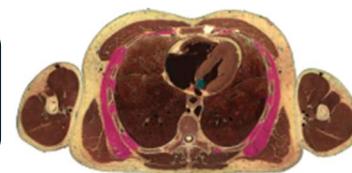


4 Find and highlight the P. major muscle

- Open the Anatomy glossary window by selecting the “Anatomy” icon .
- Make sure you are under the “Index” list .
- Enter “Pectoralis major” into the search box.
- Tap the “Highlight” icon next to “Pectoralis major – Right” to add and highlight this muscle. *(The cross-sections are in standard radiologic orientation, so the right P. major is highlighted on the left side of the screen.)*

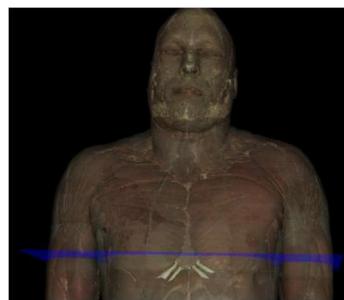


What are four other muscles that contribute to the thoracic wall? Explore the cross-sectional and 3D models to identify muscles contributing to the thoracic wall.



5 Adjust the skin to see surface anatomy

- Tap the “Skin” icon  to reveal the skin tool.
- Slide the bar to the right or left to change the opacity of the skin.
- Before proceeding, remove the skin from the 3D model (slide the bar to the left).



6 Isolate the Phrenic Nerves by simplifying the 3D model

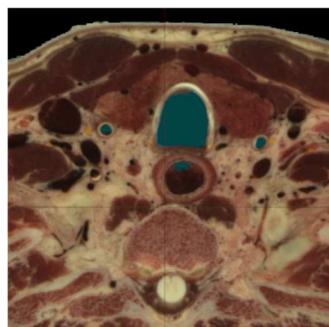
- Clear the 3D model by tapping the “Hide All” icon at the top of the Anatomy glossary. 
- Next, tap the “Systems” icon  on the left side of the Anatomy glossary to open the Systems list.
- Add the full skeletal system to the 3D model by selecting the “Visible” icon  to the left of “Skeletal System”. Tap the Anatomy icon  to close the Anatomy window.
- Dissect the bones of the sternum and costal cartilages using the “Dissect” tool .
- Tap the Anatomy icon, and expand “Nervous System” > “Peripheral Nervous System” > “Spinal Nerves”.
- Expand “Cervical Plexus – Left” and “Cervical Plexus – Right”.
- Add and highlight left and right “Phrenic Nerve” using the “Highlight” icon .



Within the Anatomy window, toggle between “Index” , “Regions” , and “Systems”  to sort through a listing of specific anatomical structures that you can show, hide, or highlight.

Follow the Phrenic and Vagus Nerves

- Scroll through the transverse cross-section to view the first rib.
- Find and highlight  the “Vagus Nerve” (Hint: use the search box in the index list).
- Locate the phrenic and vagus nerves in the cross-section.
- Zoom in and center the cross-section to get a closer look at the nerves (Hint: use two fingers!).
- Follow the nerves inferiorly by scrolling through the cross-section with one finger.

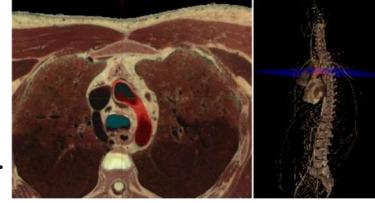


8 Visualize a more complex structure, the Aortic Arch

- Clear the 3D model .
- Confirm you are on the “Systems” list , then click “Collapse”  in the top right corner of the Anatomy glossary.
- Expand “Skeletal System” > “Axial Skeleton” and add  “Vertebral Column”
- Next, expand “Cardiovascular System” and add  “Heart”.



- Tap the “Rotate” icon , then rotate the 3D model to a posterolateral view.
- Scroll through the cross-section to view the aorta where it exits the heart.
- Manually highlight  the “Ascending Aorta”.
- Scroll through the cross-sections to follow the ascending aorta superiorly until it begins to arch.
- Manually highlight  the “Aortic Arch”.

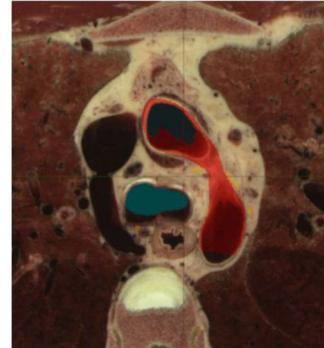


List the three branches of the aortic arch. Visually trace the aorta superiorly to identify the branches. Remember to use the highlight function and hover over the cross-section!

9 Revisit the Vagus Nerve

- Open the “Systems” list  and expand “Nervous System” > “Peripheral Nervous System” > “Cranial Nerves”.
- Highlight the left and right “Vagus Nerve [X]” .
- Scroll through the cross-section, locate the left vagus nerve and follow it inferiorly as it passes the aortic arch.

What branch of the vagus nerve loops inferior to the aortic arch? Examine the cross-sectional anatomy.



10 Free Exploration

- Practice using these tools (and exploring other options) to examine additional thoracic structures of interest.
- Click the “Cross-Section” tool  and select “Visible” and “Anatomy” under the Sagittal cross-section. Click the Cross-Section icon or one of the main panels to close the window.
- When finished, click the home button  on the top right corner to return the main VHD window.
- Select “View” > “Reset 3D” to reset the models.



Original design: Toltech
Modified with permission: Taflin Arbor, Ph.D., WFUSM

One of my favorite tools is to use an anatomic cross-section superimposed on a 3D model. Try it!